An Address
ON
THE VALUE OF TUBERCULIN IN DIAGNOSIS AND TREATMENT.

Delivered at the Medical Graduates' College and Polyclinic on Feb. 9th, 1900,

BY T. McCALL ANDERSON, M.D. GLASG.,
PROFESSOR OF CLINICAL MEDICINE AND DEAN OF THE MEDICAL FACULTY IN THE UNIVERSITY OF GLASGOW.

GENTLEMEN,—When the council of this institution did me the honour of inviting me to give a clinical lecture I had some difficulty in complying with their request because the clinical material at my disposal in Glasgow was not available and I had neither time nor opportunity in the midst of my work as examiner for the Army Medical Service to select on the spot cases suitable for my purpose. But it occurred to me that, instead of complying with the letter of their request, I might deal with some subject of practical interest, and with their consent I now propose to refer shortly to the value of tuberculin in diagnosis and treatment—a therapeutic measure in which from the first I have taken a deep interest and of which I have had considerable experience.

Most of us remember the intense enthusiasm with which Koch's great discovery was greeted and it was then the confident expectation of the public—if not of the profession—that the days of tuberculous disease were numbered. The consequence of such anticipations, as might have been expected, was that this powerful agent was too often employed in a reckless and indiscriminate manner. Patients were dosed with it on wholesale principles, often without due reference to the suitability of their cases, and the amount administered was generally unduly high, or too frequently repeated, thus leading to inevitable disaster. It is not surprising, therefore, that the extravagant laudation with which the discovery of Koch was hailed soon gave place to an equally absurd depreciation of its merits. Indeed, I am probably within the mark when I say that there are very few medical men in this country at the present time who are in the habit of using tuberculin. At all events, I can say that amongst the 40 medical officers attached to my own hospital it is not used by any of them. After a pretty wide experience I see no reason to resile from the opinion which I ventured to express in 1890—that the discovery of tuberculin "marked the commencement of a new era both in diagnosis and therapeutics."

In the recent discussions which have taken place throughout this country on the means to be adopted for the prevention of tuberculosis, one of the points most insisted on was the necessity of preventing the sale of tuberculous meat, and, above all, of the milk of tuberculous cows, and with practical unanimity it was conceded that the injection of tuberculin was a very certain test of the presence or absence of tuberculous disease in animals. How is it, then, that the tuberculin test is confidently relied upon by veterinary surgeons for the diagnosis of tuberculosis in animals, while medical men who applaud the use of it in animals with rare exceptions fail to take advantage of it in human beings when a doubt exists as to the diagnosis? Possibly it may be owing to the belief that though useful in the case of animals it is not to be relied on in the case of man, or that it would be an unsafe procedure in the latter. But I can say that if used with reasonable care it is both efficient and safe in the human subject. I could give many illustrations of its value in diagnosis but two will suffice, the first of which at the same time illustrates its curative power, though not quoted for that purpose.

CASE 1. *Tuberculin as a diagnostic test.*—A servant girl, aged 19 years, was admitted into the Western Infirmary of Glasgow on Jan. 15th, 1898. Her family history was excellent except that one brother, aged four years, was said to have died from tuberculous peritonitis. With regard to the patient's history, two years before admission a small, dark red, almost livid spot appeared on the outside of the left thigh which gradually healed in the centre and spread at the edges; the surface was dry and scaly and there was neither pain nor itching. Shortly afterwards a similar patch appeared below the knee which ran a like course, but it had healed up before admission, a cicatrix, which was brown at the edges, being left. Nine months before I saw her pustules formed in the centre and at the upper part of the first patch, which ended in ulceration. The ulcerated surface continued to discharge a thick yellow pus and undermined the skin, which had a livid tint. The diagnosis lay between hereditary syphilis and tuberculous disease. As I was inclined to think that it was probably tuberculous I determined to test the point with tuberculin. The first injection of the old tuberculin was given on Jan. 15th, but there was no decided reaction till the third dose of three cubic centimetres of a strength of 1 in 1000 was given on the 20th, which sent up the temperature to 100·4°F., while the fourth (same dose) on the 23rd sent it up nearly to 103°, thus leaving no doubt of the tuberculous character of the ulceration. This treatment was therefore continued till the end of February, there having been 21 injections in all (the initial injection being 0·001 cubic centimetre and the largest 0·175 cubic centimetre), the total quantity used being nearly one cubic centimetre of the undiluted tuberculin. The only other treatment was three ounces of cod-liver oil daily and she was dismissed quite well on March 24th, the whole duration of the treatment being about two months (chart shown).

CASE 2.—On June 2nd, 1899, a lad, aged 11 years, came under my care in the Western Infirmary of Glasgow complaining of weakness and of a swelling of two months' duration on the left side of the neck. His father and mother and nine of a family of 14 were alive, but one of these was suffering from "consumption of the bowels" and one from "decline." The five who died succumbed to chest complications in connexion with whooping-cough. Two months before admission the patient, who had always been pale and delicate, fell off a wall, and immediately thereafter began to complain of pain in the left side of the neck where a distinct swelling made its appearance. He was sick for a time after the fall, but in a few days the pain in the neck disappeared; the swelling, however, remained, although, according to the mother, it varied in size from day to day, and a week before he came to me it rapidly increased in size. The patient, on admission, was emaciated, pale, and anæmic, the hæmoglobin was 45 per cent., and the corpuscles numbered 4,000,000, there being no excess of white corpuscles. There was no fever, no œdema, and the urine was normal, but he complained of shortness of breath, palpitation, and pain across the abdomen on exertion, with occasional vertigo. The spleen was slightly enlarged, though its lower edge could not be felt, and the liver extended for an inch below the costal margin in the nipple line. There was slight enlargement of the inguinal, axillary, and submaxillary glands. The left submaxillary glands were greatly enlarged, forming a prominent mass in the left side of the neck, but the individual glands could not be distinguished. This mass was painful, freely moveable, and firm. He was sent to me as a case of lymphadenoma, but I suspected that the disease might be tuberculous and therefore tried tuberculin. The first four injections of ½ cubic centimetre, 1 in 1000, old tuberculin sent the temperature up to 102·2°F., 102·8°, 102·6°, and 102·4°, while a subsequent injection of one cubic centimetre, 1 in 1000, produced a temperature of 104·8°. There being, therefore, no doubt as to the nature of the case he was transferred to the wards of one of my surgical colleagues. (Chart shown).

It is a well-known fact that while physical signs often indicate with precision the seat of disease there is frequently tuberculous deposit elsewhere unaccompanied by symptoms of any kind and therefore overlooked. But here, again, with the aid of tuberculin we are able to ferret out and to localise unsuspected foci of disease, as in the following case.

CASE 3.—A man, aged 28 years, was admitted in the second week of January, 1891. He had had five attacks of hæmoptysis within 13 months, occurring at intervals of two or three months, and he had two anal fistulæ of nine months' duration. An examination of the chest showed entire absence of physical signs with the exception of *weakened respiratory murmur at the right base.* He was treated with the old tuberculin; 13 injections were given in all, the first of 2 cubic centimetres of 1 in 1000 on Jan. 16th and the last, 50 times stronger, on Feb. 17th. Before dismissal on March 13th the following report was made: "He

has had no hæmoptysis for six months and *râles which appeared along with much pain at the right base* after second injection gradually disappeared within a fortnight and there are now no physical signs. Both fistulæ have completely healed. There has been great improvement in the general health with an increase in weight of nine and a quarter pounds."

Many other cases of a similar nature might be mentioned. For example, in a case of lupus of the face the injection of tuberculin not only inflamed the face but also lighted up pain, tenderness, and swelling of the right elbow-joint, which, however, disappeared after a few injections, and in a case of phthisis, soon to be referred to, there were no evidences of disease in the right lung, and yet when the treatment was commenced moist râles appeared over an area of the size of a crown-piece near the right nipple, which, however, disappeared when the injections were given a few times. The curative power of tuberculin is well illustrated by the two cases already mentioned, but further proof of its beneficial influence is afforded by the cases which follow, the first two being cases of phthisis which benefited greatly from the treatment.

CASE 4.—A man, aged 34 years, was admitted into the Western Infirmary of Glasgow on Dec. 1st, 1897, on the recommendation of Dr. Service of Mossend. The only flaw in the family history was that one brother died from hæmoptysis at the age of 30 years. He had never been well since an attack of influenza three years before, and two years ago a short hacking cough set in, accompanied by a muco-purulent expectoration, in which he sometimes noticed blood. About this time also he began to lose flesh and during the last two years had lost two stones. For 18 months he had suffered from night sweats and during the last six had two attacks of hæmoptysis. For a few months, too, his strength had failed very much, and lately he had been almost unfit for work. Shortly before admission he was seen after a long interval by Dr. Service who wrote: "When I saw him I was greatly shocked at his appearance; he had the appearance of a dying man and came, as he said, that I might tell him the worst and how long he had to live." On admission he was found to be pale and emaciated, with no appetite, troubled with night-sweats and with much expectoration, in which tubercle bacilli were found in great abundance by Dr. A. R. Ferguson, but there was no fever. There were no physical signs in the right lung. Over the upper lobe of the left lung in front there were moderate flattening and defective movement, decided dulness, marked increase of vocal fremitus, and slighter of vocal resonance, whilst moist râles with tubular breathing were heard on deep inspiration. Tubular breathing was also detected in the supra-spinous region and moist râles between the scapula and the spine. At the base there were slight dulness and feeble breathing; indeed, there was no part of the lung which was altogether free from signs of disease. Dr. Service sent the patient to me with the view of having a course of tuberculin treatment, and although I did not consider the case a very hopeful one I decided to give him a chance with the new tuberculin, the only other treatment being cod-liver oil, up to three ounces per day. The first injection of $\frac{1}{1000}$th milligramme was given on Dec. 12th, 1897; the largest, two and a half milligrammes, on Feb. 26th, 1898; and the last of one milligramme on April 14th, the total amount used being about 31 milligrammes in 47 injections. From the time the treatment was commenced he improved steadily, more particularly as regards his general condition, and was dismissed at his own request on April 28th when the following report was taken; "The patient feels in good health; he can now read with comfort for hours whereas formerly his eyes soon got tired with reading; his appetite is completely restored; the night sweats have long disappeared; his cough and expectoration are almost gone; and he has gained about 1 st. 6 lb. in weight."

The after-history of the case is as follows. The last time I saw him was on July 14th when he visited me at my request. I found that he had not fallen off in any respect and that he had gained 7 lb. since dismissal, making a total gain of 2 st., his weight now being 12 st. 3 lb., which was his normal weight. He also stated that he could now do an ordinary day's work without fatigue. The improvement in the general was more marked than in the local condition. The expectoration showed that bacilli were still present, but in small numbers, and mostly found lying separately. The right lung remained healthy, while the condition of the left was as follows. The flattening, defective movement and dulness in front were not nearly so pronounced and the râles, though still present, were scanty; while between the scapula and spine they had entirely disappeared, only puerile breathing being heard. The dulness and feeble breathing at the base were hardly perceptible. In a letter which I received lately from Dr. Service he said: "When I saw him last at the beginning of this week he looked better than I have ever known him; he eats and sleeps well and has hardly any cough. I feel satisfied that, whatever his ultimate fate, he would now have been in his grave had it not been for the treatment which was followed. On my advice he is looking out for a situation abroad."

It will be observed that the tuberculin treatment was not steadily increased, owing partly to a change of assistant during its course and partly to the stock of tuberculin having temporarily run out. The full dose, too, was not reached, two and a half milligrammes being the largest injection instead of the maximum of 20 milligrammes, because the patient felt so well as to desire to return home. The improvement, however, was so marked as to show undoubtedly the beneficial effect of the new tuberculin treatment even in pretty advanced cases. (Chart shown.)

The following case may also be referred to, although it is still under observation.

CASE 5.—A young man, aged 17 years, was admitted on August 5th, 1899. The family history was satisfactory, although a maternal aunt died from consumption. He was never very robust, but enjoyed fair health until 14 months before I saw him, when he caught cold, and he has had a cough at intervals ever since. In the spring of last year his cough became aggravated, and was accompanied for the first time by expectoration, which was "tough and yellow," and on one occasion blood-stained; and about two months before admission he suffered for a few days from a stabbing pain over the left breast, aggravated on coughing or taking a deep breath. He had lost flesh and strength and colour, was easily tired, and had complained occasionally of night sweats and of palpitation and breathlessness on exertion. In the right infra-clavicular region there was some flattening, defective movement, dulness and crackling râles, which were also present over the upper two-thirds of the back. The expectoration was abundant, muco-purulent, and contained tubercle bacilli in great abundance. There was no fever. He was put upon generous diet with three pints of milk and three ounces of cod-liver oil per day. He also had a subcutaneous injection of 10 minims of a saturated solution of picrotoxin at bedtime and was kept as much as possible in the open air. The night sweats soon disappeared, he felt stronger, and increased in weight, and by Nov. 11th all trace of râles had disappeared in front, but they were still very decided behind. On Nov. 12th, therefore, a course of the old tuberculin was commenced and is being still continued. The last report was taken on Jan. 12th and is as follows: "There is still slight mucous expectoration, about one-eighth of what he had at first, containing tubercle bacilli, though in decreased numbers, but all trace of râles has disappeared and the physical examination of the chest reveals no definite physical signs. Since admission he has gained 1 st. 4½ lb., weighing 8 st. 12½ lb., being 9½ lb. above his normal weight before the commencement of his illness."

But the best class of cases for studying the effects of the tuberculin treatment is that of external tuberculosis, because we can see the results which ensue. One of my resident medical officers (Dr. John Aitken) has kindly at my request tabulated the particulars of 45 consecutive cases admitted into the Western Infirmary of Glasgow from April, 1889, to April, 1899, and without any preconceived opinions. The following is a summary of the results. Of these, 35 were illustrations of lupus vulgaris, seven of scrofuloderma, and three of lupus erythematodes. All were treated with the old tuberculin with the exception of one in which the new (T.R.) tuberculin was used, and the only other treatment consisted of generous diet and from two to three ounces of cod-liver oil daily.

Of the 35 cases of lupus vulgaris 23 were females and 12 were males. The oldest patient on admission was 59 years of age and the youngest 10 years, the average being 23 years. The age of the youngest patient when the disease commenced was seven years and that of the oldest 28 years, the average age at commencement being 13 years. The duration of the disease when the patient was admitted was in one case as low as five months, while in another it had been present for no less than 46 years, the

average duration being seven and a half years. In 32 of the 35 cases the face was involved, generally the nose prominently or exclusively, and, in several, other parts of the body or limbs were involved as well. In one case the right arm and neck were attacked alone, in one the left thigh and neck only, and in one the left leg was the part implicated. The duration of the tuberculin treatment varied from seven weeks to six months, but one patient, who was much improved when she left the hospital, could only be induced to remain for four weeks. The average duration of the treatment was four months. In 33 of the 35 cases the result is thus tabulated by Dr. Aitken: Improved, two; much improved, eight; very much improved, seven; almost well, four; well, 12; total, 33. It will thus be observed that improvement was invariable, and the number of cases dismissed well would have been much greater had we been able to induce some of the patients to remain longer under treatment.

Of the seven cases of scrofuloderma—five being males and two females—the oldest patient on admission was 60 years of age, the youngest 9 years, the average age being nearly 22 years, or omitting the one aged 60 years, fully 12 years. The age at which the disease commenced varied from one to 49 years, the average age being fully 12 years. Its duration on admission varied from four to 13 years, the average being nearly nine years. The parts affected were: (1) the right leg and thigh, (2) the thigh and buttocks, (3) the right thigh, (4) the left thigh and scrotum, (5) the right ankle, (6) the cheeks and right arm, and (7) the left side of the face and neck. It will thus be observed that while in lupus the face is almost always involved, in scrofuloderma it generally escapes, the lower segment of the body being predominantly implicated. The duration of the tuberculin treatment in the latter varied from three to five and a half months, the average being nearly four months. The results are thus tabulated by Dr. Aitken—improved, one; almost well, one; and well, five.

The three cases of lupus erythematodes all occurred in females. The first of those patients was 31 years of age on admission, the nose and left cheek being involved for a period of 14 years; the second was 18 years old, and the disease had implicated the face, ears, hands, and arms for two years; while the third, aged 23 years, had suffered from it for three years, the cheeks, head, and knuckles being implicated. The duration of the tuberculin treatment was two and three-quarter months, two and a half months, and one and three-quarter months, and they were all dismissed well. In all of them the local and constitutional reactions were well marked. (Temperature charts handed round.) These results will be a surprise to many, and are even to myself, because I have not been equally fortunate in all the other cases of the same disease, but one positive outweighs many negative results.

From an early period of my professional life I have always taught that lupus vulgaris and lupus erythematodes were manifestations of the strumous diathesis, a view which was long opposed by the majority of experts. At the present time, however, the tuberculous nature of lupus vulgaris is generally conceded, while lupus erythematodes is almost universally considered to be independent of the strumous diathesis. The main grounds for this opinion are that the tubercle bacillus has not been found in the latter affection and that tuberculin injections yield no reaction and do no good. The cases, therefore, which I have just referred to are of special interest as supporting my view that lupus erythematodes is a member of the tuberculous family.

Now whether is tuberculin—as far as its therapeutical effect is concerned—to be regarded in the light of a constitutional or a local medication? That it produces constitutional symptoms we know, as witness the fever, the headache, and the sickness which so often follow its administration; but these are injurious rather than otherwise and the less we have of them the better. That it produces marked local symptoms we see in cases of external tuberculosis, for we observe after each injection redness, swelling, serous exudation, and crustation, accompanied by elevation of temperature at the part, and I think it cannot be doubted that it is this inflammatory action which puts the enemy to rout just as an attack of erysipelas of the face often improves, if it does not remove, a tuberculous affection of that part. If this be true then it follows that we must regard tuberculin treatment in the light of a local remedy, but one which does not rectify, but rather intensifies, the constitutional vulnerability. From this it is obvious that, as we aim at permanent results, we must not rest content with injecting tuberculin only but must combine it with general treatment.

Some of my professional brethren who have carried out the tuberculin treatment on a considerable scale—especially in the case of external tuberculosis—agree with me as to the immediately beneficial results of such a course of treatment, but state that after the course is completed there is generally a recrudescence of the malady. Now I freely admit that if patients are treated by means of tuberculin injections alone and then dismissed from hospital to miserable homes, where they are deprived of light, pure air, abundant food, and tonic treatment generally, a recrudescence of the disease is all but certain. For we must never forget that two factors have to be taken into account in dealing with tuberculous disease: (1) the tubercle bacillus; and (2) the soil favourable to its life and development. So that, in order to obtain permanent results, it is obvious that, in addition to the use of tuberculin, means must be taken simultaneously to change the soil upon which the micro-organism flourishes, such as good and abundant nourishment, living as much as possible in the open air, and the use of tonics, cod-liver oil, and other anti-strumous remedies. This combined treatment, if judiciously carried out, has, in my experience, yielded excellent results and I commend it to you with confidence.

In view of economy of material, especially in reference to the more expensive T.R. tuberculin, the process of diluting the remedy so as to meet the requirements of varying doses is somewhat troublesome. The following is the scheme which has been adopted in connexion with my department in the Western Infirmary of Glasgow and which perhaps may prove useful to others.

METHOD OF DILUTING TUBERCULIN ADOPTED IN PROFESSOR McCALL ANDERSON'S WARDS IN THE WESTERN INFIRMARY OF GLASGOW.

(Drawn up by Dr. John Macewen, Resident Medical Officer.)

Doses of Old Tuberculin.

Make up with ½ per cent. carbolic.

(*a*) Make up 5 cm. to 5 c.c. = 1·1000

Doses ½ c.c. = $\frac{1}{2000}$ c.c. = $\frac{2}{4000}$ c.c.
1 c.c. = $\frac{1}{1000}$ c.c. = $\frac{1}{1000}$ c.c.
1½ c.c. = $\frac{3}{2000}$ c.c. = $\frac{3}{2000}$ c.c.

(*b*) Make up 10 cm. to 5 c.c. = 1·500

Doses 1 c.c. = $\frac{1}{1000}$ c.c. = $\frac{1}{500}$ c.c.
1½ c.c. = $\frac{3}{1000}$ c.c. = $\frac{3}{1000}$ c.c.

(*c*) Make up 20 cm. to 5 c.c = 1·250

Doses 1 c.c. = $\frac{1}{500}$ c.c. = $\frac{2}{500}$ c.c.
1½ c.c. = $\frac{3}{500}$ c.c. = $\frac{6}{500}$ c.c.
2 c.c. = $\frac{4}{500}$ c.c. = $\frac{4}{500}$ c.c.

(*d*) Make up 50 cm. to 5 c.c. = 1·100

Doses 1 c.c. = $\frac{1}{500}$ c.c. = $\frac{1}{10}$ c.c.
1½ c.c. = $\frac{3}{500}$ c.c. = $\frac{3}{100}$ c.c.

(*e*) Make up 100 cm. to 5 c.c. = 1·50 ($\frac{1}{10}$ c.c.)

Doses 1 c.c. = $\frac{1}{500}$ c.c. = $\frac{2}{100}$ c.c.
1½ c.c. = $\frac{3}{500}$ c.c. = $\frac{3}{100}$ c.c.

(*f*) Make up 200 cm. to 5 c.c. = 1·25

Doses 1 c.c. = $\frac{1}{200}$ c.c. = $\frac{1}{25}$ c.c.
1½ c.c. = $\frac{3}{200}$ c.c. = $\frac{3}{25}$ c.c.
2 c.c. = $\frac{4}{200}$ c.c. = $\frac{4}{25}$ c.c.

(*g*) Make up ½ c.c. to 5 c.c. = 1·10

Dose 1 c.c. = $\frac{1}{10}$ c.c. = $\frac{1}{10}$ c.c. = maximum.

Doses of New Tuberculin.

Make up with 20 per cent. glycerine solution.

(*a*) Make up 1 cm. to 5 c.c. = 1·5000

Doses 1 c.c. = $\frac{2}{10000}$ c.c. = $\frac{1}{5000}$ mg. = $\frac{1}{5000}$ mg. = $\frac{1}{3333}$ mg.
1½ c.c. = $\frac{3}{10000}$ c.c. = $\frac{3}{10000}$ mg. = $\frac{3}{10000}$ mg. = $\frac{1}{2000}$ mg.

(*b*) Make up 2 cm. to 5 c.c. = 1·2500

Doses 1 c.c. = $\frac{1}{10000}$ c.c. = $\frac{1}{2500}$ mg. = $\frac{1}{2500}$ mg. = $\frac{1}{1666}$ mg.
1½ c.c. = $\frac{3}{10000}$ c.c. = $\frac{3}{2500}$ mg. = $\frac{3}{2500}$ mg. = $\frac{3}{2500}$ mg.
2 c.c. = $\frac{4}{10000}$ c.c. = $\frac{4}{2500}$ mg. = $\frac{4}{2500}$ mg. = $\frac{1}{625}$ mg.

(*c*) Make up 5 cm. to 5 c.c. = 1·1000

Doses 1 c.c. = $\frac{2}{10000}$ c.c. = $\frac{1}{5000}$ mg. = $\frac{1}{5000}$ mg. = $\frac{1}{3333}$ mg.
1½ c.c. = $\frac{3}{10000}$ c.c. = $\frac{3}{5000}$ mg. = $\frac{3}{5000}$ mg. = $\frac{1}{2000}$ mg.

(*d*) **Make up 10 cm. to 5 c.c. = 1·500**

Doses 1 c.c. = $\frac{1}{10}$ c.c. = $\frac{3}{10}$ mg. = $\frac{30}{100}$ mg. = $\frac{1}{3}$ mg.
1½ c.c. = $\frac{15}{100}$ c.c. = $\frac{45}{100}$ mg. = $\frac{450}{1000}$ mg. = $\frac{1}{2}$ mg.

(*e*) **Make up 20 cm. to 5 c.c. = 1·250**

Doses 1 c.c. = $\frac{1}{20}$ c.c. = $\frac{5}{20}$ mg. = $\frac{125}{1000}$ mg. = $\frac{1}{4}$ mg.
1½ c.c. = $\frac{3}{20}$ c.c. = $\frac{15}{20}$ mg. = $\frac{375}{1000}$ mg. = $\frac{3}{8}$ mg.
2 c.c. = $\frac{2}{20}$ c.c. = $\frac{10}{20}$ mg. = $\frac{250}{1000}$ mg. = $\frac{1}{2}$ mg.

(*f*) **Make up 50 cm. to 5 c.c. = 1·100**

Doses 1 c.c. = $\frac{1}{50}$ c.c. = $\frac{2}{50}$ mg. = $\frac{100}{1000}$ mg. = $\frac{1}{10}$ mg.
1½ c.c. = $\frac{3}{50}$ c.c. = $\frac{6}{50}$ mg. = $\frac{300}{1000}$ mg. = $\frac{3}{10}$ mg.

(*g*) **Make up 100 cm. ($\frac{1}{10}$ c.c.) to 5 c.c = 1·50**

Doses 1 c.c. = $\frac{1}{100}$ c.c. = $\frac{3}{100}$ mg. = $\frac{300}{1000}$ mg. = $\frac{1}{3}$ mg.
1½ c.c. = $\frac{15}{100}$ c.c. = $\frac{45}{100}$ mg. = $\frac{450}{1000}$ mg. = $\frac{1}{2}$ mg.

(*h*) **Make up 200 cm. ($\frac{1}{5}$ c.c.) to 5 c.c. = 1·25**

Doses 1 c.c. = $\frac{1}{200}$ c.c. = $\frac{2}{3}$ mg. = $\frac{250}{1000}$ mg. = $\frac{2}{3}$ mg.
1½ c.c. = $\frac{3}{200}$ c.c. = $\frac{2}{3}$ mg. = $\frac{375}{1000}$ mg. = $\frac{3}{8}$ mg.
2 c.c. = $\frac{2}{200}$ c.c. = $\frac{1}{3}$ mg. = $\frac{250}{1000}$ mg. = $\frac{1}{4}$ mg.

(*i*) **Make up ½ c.c. to 5 c.c. = 1·10**

Doses 1 c.c. = $\frac{1}{10}$ c.c. = 1 mg.
1½ c.c. = $\frac{3}{10}$ c.c. = 1½ mg.

(*j*) **Make up 1 c.c. to 5 c.c. = 1·5**

Doses 1 c.c. = $\frac{1}{10}$ c.c. = 2 mg.
1½ c.c. = $\frac{3}{10}$ c.c. = 3 mg.

Note, in making up larger doses, that $\frac{1}{10}$ c.c. = 1 mg.

With regard to the preparation of tuberculin to be preferred I must speak with some reserve, for while I have had much experience in the use of the old I have necessarily had comparatively little of the new tuberculin. I am inclined to think, however, that the latter is the safer of the two, because, in appropriate doses, it produces much less reaction, but for that very reason it is not so reliable as the former as a diagnostic test; and a serious objection to the new tuberculin is its cost, particularly when the higher doses are reached, which precludes its use amongst the poor except in the case of those received into hospital. The initial dose of the old tuberculin is from half to one cubic centimetre of 1 in 1000, that of the new one cubic centimetre of 1 in 5000; while the final dose of the first is one cubic centimetre of 1 in 10, and of the second two cubic centimetres undiluted. Now the final full dose of the old tuberculin costs less than a penny, while that of the new is 17*s.*, so that it is mainly a luxury for the rich. It is to be hoped, however, that the time is not far distant when it may be obtained at moderate rates.

DIFFERENTIATION IN DIABETES.

BY F. W. PAVY, M.D. LOND., LL.D. GLASG., F.R.S.,
CONSULTING PHYSICIAN TO GUY'S HOSPITAL.

ONE of the most striking features belonging to diabetes is its varied character in different cases, and anything that will assist in distinguishing one variety of the disease from another affords help in throwing light upon the prospect that may be looked for. In connexion with prognosis, therefore, the differentiation of cases is a matter of deep importance.

It has long been known that there is a class of case in which the eliminated sugar is solely derived from the food. It constitutes what has been appropriately named the "*alimentary*" form of diabetes. Without any theoretical consideration being involved it may be simply said that the carbohydrate matter of the food fails to be dealt with in the system in such a way as to be placed in a proper position for utilisation. As a consequence it becomes discoverable as sugar in the circulation and is thence discharged as waste material with the urine. Under normal circumstances it is conceded that neither the blood nor the urine is sensibly influenced by the food looked at in relation to carbohydrate matter. No matter what the nature of the food, there is a certain small amount of sugar uniformly existing in the blood, just as there is in the various solid structures of the body, and, moreover, this, as the result of recent investigation, I have found[1] not to consist exclusively of dextrose, as was formerly supposed, but, as in the case of the other component parts of the body, of a mixture of dextrose with a lower cupric oxide reducing sugar.

In the "*alimentary*" form of diabetes the erroneous state observed in connexion with the urine consists purely and simply of the abnormal presence of dextrose. As a result, when the urine is examined quantitatively by cupric oxide reduction and the polarimeter the figures given by the two methods stand in accord, or sufficiently so for the difference noted to fall within the limits of error of observation. There is nothing present in the urine to make them stand otherwise. It will be easily understood that for the object under consideration great accuracy of examination is required and that expert hands are needed. As a further point in connexion with this kind of urine it is found that when the dextrose has been removed by fermentation with yeast, and Fehling's solution no longer gives any reaction, the polarimeter also fails to afford any evidence of either right-handed or left-handed optical activity. Simply placing the urine aside in a warm situation for 24 hours with some broken-up German yeast ordinarily suffices for the complete removal of the dextrose. Yet another point to be noticed is that the urine belonging to the "*alimentary*" form of diabetes does not possess the abnormality which leads to the production of a colour reaction with ferric chloride.

In contrast to this simple form of diabetes we have the class of affection in which the dextrose in the urine is derived from a twofold source. As in the "*alimentary*" form of the disease, dextrose is present as a result of faulty carbohydrate assimilation. In addition it is present as a consequence of abnormal proteid disintegration. By faulty metabolism a tissue breaking-down occurs, attended with the production of sugar associated with other abnormal degradation products. Through this proteid disintegration consequences arise which do not follow the simple faulty assimilation of carbohydrate matter. Pernicious results, it is true, ensue from the sugar that reaches the system from mal-assimilated carbohydrate matter, but further and graver effects arise from the condition attended with the production of sugar from faulty degradation metabolism. It is to the toxicity of one or more of these products of disintegration accompanying the sugar that diabetic coma is attributable. Thus a form of danger is engendered which does not attend the abnormal existence of the sugar alone.

In defining this class of case the term "*grave*" has been made use of. This term, it must be admitted, expresses the truth from its associated point of view; but from the conception it gives rise to it does not felicitously fit in with what is desirable for general medical use. It seems to me that the term "*composite*" strictly meets the circumstances in relation to the condition existing and also stands appropriately in contrast to the "*alimentary*" or simple form of the complaint. I propose, therefore, to use it to distinguish the form of diabetes in which evidence is presented of tissue disintegration constituting a partial source of the dextrose eliminated from that in which the eliminated dextrose is derived solely from the food. It is, then, the presence in the urine, concurrently with the sugar, of the products of faulty tissue breaking-down that characterises the "*composite*" form of the disease.

The normal ultimate products of disintegration resulting from the oxidation going on in the body are ammonia, carbon dioxide, and water. With the faulty disintegration occurring in the "*composite*" form of diabetes a series of products not recognisable in healthy urine become discoverable. The chain in its successive stages of descent runs as follows: β-oxybutyric acid, diacetic, often called aceto-acetic, acid, and acetone. It is true that a traceable amount of the last-named principle is susceptible of being found in normal urine. Such is not the case, however, with the others. From this it would appear that the kind of degradation is not absolutely foreign to the healthy state, but its extent of occurrence must be very insignificant. It should also be mentioned that there are certain other morbid conditions, apart from diabetes, in which the same set of principles are met with in the urine, so that the line of retrograde metamorphosis at the foundation of their production is not, strictly speaking, peculiar to diabetes.

As I have said, traces of acetone are met with in normal urine, but the presence of the other principles may be regarded as pathological. They are indicative of abnormal proteid destruction and their amount may be taken as furnishing a measure of the extent of its occurrence. This is

[1] Journal of Physiology, 1899, vol. xxiv., p. 479.

an important point, as we are thus enabled to read off in a given case the magnitude of the morbid action in play in the direction in question.

I will proceed to show the manner in which the estimation can be effected by methods adapted for clinical application. It may first of all be mentioned that oxybutyric acid is not found except in association with diacetic acid and acetone, but the last two may be present in the absence of the first. The same position exists with regard to diacetic acid and acetone. With diacetic acid there is a co-existence of acetone, but with acetone not necessarily a co-existence of diacetic acid. Indeed, what has been said about the normal state of things affords an exemplification of this. It seems as if the metamorphosis when occurring only to a small extent passes through to acetone without sufficient stoppage on the way to permit of the intermediate products reaching the urine. With an occurrence of the metamorphosis upon a larger scale, first diacetic acid and then both diacetic acid and oxybutyric acid become manifest.

It is the levo-rotatory β-oxybutyric acid that is found, and the effect of its presence is to neutralise, in proportion to its amount, the right-handed rotatory effect of dextrose. In the absence of oxybutyric acid the results given by estimation with cupric oxide reduction and the polarimeter should stand pretty closely in accord. It is to be understood that a certain amount of allowance, which should not exceed about one, or it may be from this to two, per 1000, must be made for a possible discordance occasioned by manipulative error. In the presence, on the other hand, of oxybutyric acid its levo-rotatory action takes away from the dextro-rotatory effect produced by dextrose and thus a reading is given it may be much below that which would have resulted if the dextrose had stood alone, and consequently correspondingly below the figures given by cupric oxide reduction. By the difference noticed an indication is afforded of the extent to which abnormal proteid disintegration is occurring.

Supplementary information is obtainable by fermenting the dextrose away and then examining with the polarimeter. When the urine is thus treated the yeast—German yeast obtainable from a baker is the best to employ—only affects the dextrose, and in a warm situation this principle is usually found to have disappeared in 24 hours. Testing with Fehling's solution should be resorted to to ascertain if complete disappearance has occurred. The optical activity of the oxybutyric acid being now allowed to come into unopposed play a left-handed rotatory effect is shown by the polarimeter standing proportionate to the amount that is present. As I have previously mentioned, the urine belonging to the purely "*alimentary*" form of diabetes is optically inactive after the removal of its dextrose by fermentation.

Diacetic acid is susceptible of recognition by a simple method of chemical testing. Gerhardt of Berlin noticed as far back as 1865 that in some cases of diabetes and not in others a wine-red colouration of varying degree of intensity was produced on treating the urine with ferric chloride. At first it was not known to what principle this result was attributable, but subsequently it was ascertained to be due to diacetic acid and the depth of colour produced serves as a measure of the amount present. From the facility with which the presence of diacetic acid is thus disclosed Gerhardt's reaction affords a ready means of revealing the abnormal proteid disintegration associated with the "*composite*" form of diabetes. The colouration is not absolutely distinctive, being open to production with more or less resemblance by agents reaching the system from an external source, but absence of colouration may be accepted as affording reliable information of a negative nature. The ferric chloride requires to be added till the precipitate of phosphate of iron that is first produced is redissolved or a slight excess may be added and the precipitate removed by filtration. No need exists to test for acetone. The presence of oxybutyric and diacetic acids suffices to render evident the morbid action that is going on.

I have been dealing thus far only with the non-nitrogenous principles derived from the abnormal proteid destruction that gives rise to a portion of the eliminated sugar in the "*composite*" form of diabetes. The matter, however, may also be looked at from the nitrogenous side of the disintegrating molecule by following the nitrogen to its exit with the urine. Under natural circumstances the quantity of ammonia, distinct from urea, eliminated by the kidney is quite small. It exists in combination with an acid and is reckoned to amount to about one gramme per diem on a meat, and to less than 0·5 gramme on a vegetable, diet. According to the view entertained by physiologists the nitrogen of the disintegrating proteid matter passes in the first instance into ammonia. This, as formed, combines with whatever acid is present to take it, and carbonic acid stands as the most notable. If the process of downward metamorphosis stopped here we should be having carbonate of ammonia conveyed in quantity to the kidney for elimination. Instead of so pungent and obnoxious an agent, however, being left by nature to be eliminated a further change ensues. By synthesis and dehydration the carbonate of ammonia becomes metamorphosed into the neutral and inactive principle urea, and the liver is the organ in which there are grounds for believing this synthetic process mainly occurs.

It is possible for some of the ammonia produced to enter into combination with an organic acid and still for the result that has been described to ensue. It happens in this way. Organic acids are susceptible of undergoing oxidation in the system. By this oxidation they give rise to carbonic acid which takes their place in combination with the ammonia and thus, secondarily, carbonate of ammonia is generated, which constitutes the forerunner of urea. In the case of mineral acids, however, the result is different. Should it happen that a mineral acid is present for the ammonia to attach itself to the combination fails to be in a position for the construction from it of urea; and, as a result, the ammonia passes undisturbed in its combined state into the urine instead of appearing there as urea. It is only the carbonate that can be synthesised into urea. The sulphate, phosphate, and chloride cannot be touched by the synthesising power, and such being the case ammonia escapes in proportion to the amount of available mineral acids present to combine with it and carry it off.

The fixed bases take precedence of ammonia in appropriating the mineral acids. Under ordinary circumstances the fixed bases and acids are so nearly balanced as to leave but little of the latter for entering into combination with ammonia, hence the small amount of ammonia finding its way into normal urine. With the active tissue breaking down occurring in the "*composite*" form of diabetes the sulphur and phosphorus of the disintegrating proteid becoming oxidised yield an extra amount of acid without a corresponding fixed base to combine with it. Hereby the conditions are supplied for the formation of an ammonia compound which passes in an unchanged state into the urine. It is in this way that the ammonia existing in the urine stands in relation to tissue disintegration. In fevers and other affections attended with increased tissue disintegration an increased amount of ammonia correspondingly appears in the urine.

It may be considered that the quantity of ammonia eliminated ought to be something under about one gramme per diem. More than this may be taken as meaning undue proteid disintegration, and in proportion to the extent of this disintegration the danger in diabetes increases of the occurrence of the coma belonging to the disease through the toxicity of one or other of the collateral products. Somewhat widely differing records of the amount of ammonia found to have been excreted by diabetics are given. Külz's [2] maximum observed is a little over nine grammes per diem; Rumpf [3] has noticed five, six, and seven grammes per diem; and Naunyn [4] says that the amount rarely exceeds seven grammes per diem and that whenever the quantity reaches four grammes his experience teaches him that coma sooner or later occurs. He refers to Stadelmann's record of 11 grammes as standing in quite an isolated position. Threatening coma, Naunyn asserts, may often be warded off by the free administration of carbonate of soda to counteract the effect of the augmented acidosis by the supply of a fixed alkali to meet the increased production of acid, but it has not been shown that any permanently beneficial result has issued.

No easy method adapted for ordinary clinical use exists, it must be said, for the quantitative determination of ammonia as a constituent of urine. One great obstacle is the facility with which ammonia is generated from urea. Although, therefore, applicable as a measure of tissue disintegration manipulative difficulties stand in the way, except with suitable laboratory provision, of obtaining the information that is wanted. This is no great loss, however, as what is needed

[2] Klinische Erfahrungen über Diabetes Mellitus, Jena, 1899, p. 408.
[3] Quoted from Külz, loc. cit., p. 394.
[4] Der Diabetes Melitus, in Nothnagel's Specielle Pathologie und Therapie, Wien, 1898, p. 297.

is obtainable through the chain of non-nitrogenous products that I have referred to.

Looking, then, at a case that may happen to be before us, means exist, without bringing in the question of ammonia, for diagnosing whether it belongs to the "*alimentary*" or whether it has advanced into the "*composite*" form of diabetes. Upon this point may hinge the view to be taken with regard to the future prospects of the patient, a matter that must be looked upon as of supreme importance. With the foundation I have supplied to work upon I will proceed to consider separately the two forms of the complaint and will, in the first place, speak of the "*alimentary*" class of case.

(To be continued.)

CONTRIBUTION TO OUR KNOWLEDGE OF URIC ACID SALTS.

BY F. W. TUNNICLIFFE, M.D., M.R.C.P. LOND.,

PROFESSOR OF MATERIA MEDICA AND PHARMACOLOGY IN KING'S COLLEGE, LONDON; ASSISTANT PHYSICIAN TO THE VICTORIA HOSPITAL FOR CHILDREN AND TO THE NORTH LONDON HOSPITAL FOR DISEASES OF THE CHEST;

AND

OTTO ROSENHEIM, PH.D., F.C.S.

IN chemical text-books two classes of uric acid ($\overline{U}$) salts are generally described—viz., the neutral ($(C_5H_2N_4O_3)_2M_2$ or shortly $M_2\overline{U}$) and acid or biurates ($(C_5H_2N_4O_3)$ HM or $H\overline{MU}$).[1] We find, in addition to these in physiological and pathological works, a third class of urates mentioned, having the hypothetical composition of one molecule of biurate loosely combined with one molecule of uric acid, of the general formula ($C_5H_2N_4O_3$ HM). ($C_5H_4N_4O_3$) or shortly ($\overline{MHU}$) $\overline{U}$. It is to this last-mentioned class of salts, the so-called quadriurates,[2] that we have more especially directed our attention. A very important rôle has been ascribed to these salts by Sir William Roberts who regarded them as being in a special sense the physiological salts of uric acid and as "constituting the only form in which uric acid subsists in the living body in the normal state."[3] Upon this assumption theories important both to the physiologist and physician have been built, but upon examining this subject critically it seemed to us that the actual existence of these salts was by no means established.

The quadriurate hypothesis rests upon results derived from the analysis of normal urinary deposits, and as these have further a wider physiological interest it seemed to us to be advisable to give shortly the history of the work previously done in this connexion.

HISTORY.

Berzelius was the first to observe the formation of crystals from amorphous urinary deposit under the influence of water.[4] These crystals he regarded as urate of ammonium. Heintz held the amorphous urinary deposit to consist of a mixture of the urates of ammonium, sodium, calcium, and occasionally potassium and magnesium.[5] He also pointed out that different sediments yielded different amounts of ash, varying from 2·93 to 8·02 per cent. He regarded the simultaneous precipitation of these three urates as the cause of their amorphous character and the calcium salt as an essential factor in the production of the same. Scherer, in criticising Heintz's paper, concludes that the sediment consists of a mixture of acid urates and free uric acid.[6] Lehmann confirmed the observation of Berzelius and identified the crystals set free by water as uric acid.[7] Scherer, in a later paper,[8] analysed four samples of urinary deposit and found that it was a complex mixture and that the amount of each of the bases and the sum of all of them were very variable. The next worker in this field was Bence Jones.[9] He analysed three urinary deposits obtaining different results in each case. He confirmed the important observation of Scherer in that he found in each sample the uric acid present in excess of the quantity required to form biurates with the bases. The excess of this non-combined uric acid was, however, not constant and in no apparent proportion to the amount of combined acid. The proportions were sample No. I. as 1 : 1·72; No. II as 1 : 0·46; No. III. as 1 : 1·04. Although the proportions between the free and combined uric acids differed largely in the individual analyses it happened, by mere accident, that the average of free to combined in the three was as 1 : 1·1. Bence Jones subsequently proceeded to work out the proportion between the combined and free uric acid in the deposits analysed by Scherer. Viewed from this standpoint Scherer's figures gave discordant numbers, as follows:—Sample I., as 1 : 2·04; II., as 1 : 0·17; III., as 1 : 0·42; and IV., as 1 : 2·08. Bence Jones gives the average of these proportions as 1 : 1·1,[10] and does not seem to have attached any importance to this coincidence, but concludes: "It is very evident from these analyses that a mixture of different amounts of urates and uric acid constitutes the amorphous sediment of the urine." In spite of this, however, he seemed impressed that this proportion so "nearly approximated" (*sic*) to the "proportion hypothetically required by a salt whose molecule consisted of one molecule of uric acid combined with one molecule of acid urate." In pursuance of this idea he attempted to demonstrate the formation of such a salt under artificial conditions and succeeded in preparing compounds which were decomposed under the influence of water into biurate and uric acid. He produced, however, very slender evidence of the existence of a third class of uric acid salts, having the constitution of quadriurates, but in spite of this concludes "that quadriurates exist occasionally under natural conditions in amorphous urinary deposits, and can also be made artificially."

The subject remained in this condition until it was taken up by Sir William Roberts.[11] This observer, while acknowledging the inadequacy of the proof adduced by Bence Jones for the existence of quadriurates, endeavoured to prepare them himself by a modification of Bence Jones's methods. He was unable to demonstrate their presence in the natural amorphous urinary sediment but prepared amorphous urates, using human urine and various saline solutions as solvents for uric acid and to the compounds thus obtained ascribed the constitution of quadriurates. The analyses, however, upon which he relied as proving this composition are from the standpoint of the modern chemist inadequate, as will be shown later. Upon these insufficiently established data he proceeded to enunciate an elaborate hypothesis with regard to the presence and transformation of the so-called quadriurates in the tissues and blood. These views seem to have been more or less accepted and passed into many text-books,[12] although they have received no experimental confirmation.

The only experimental criticism which we have been able to find is by Pfeiffer.[13] This observer points out that the substances upon which Roberts founded his quadriurate theory were either sediments (and as such pathological) or of artificial origin, also that in the pathological sediments the presence of quadriurates could not be demonstrated. He himself further demonstrated the presence of phosphates in some of the so-called quadriurates prepared according to Roberts and pointed out that the quadriurates could only *ex hypothesi* exist in distinctly acid media, which condition does not obtain in the juices and secretions of the body except in the case of the urine and sweat. Minkowski[14] regards the assumption that uric acid exists in the blood in the form of a quadriurate as "unwarranted." In a recent

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[1] This nomenclature is misleading in so far as the reactions actually exhibited by the salts in question do not correspond to it. The neutral salts react strongly alkaline and the so-called acid salts, which so far have been accredited with a neutral reaction, have an alkaline one (vide infra).

[2] In an earlier article on Piperidine as a Uric Acid Solvent (THE LANCET, July 23rd, 1898, p. 198) we mentioned that we had not been able to convince ourselves of the existence of the so-called quadriurates. This paper may be regarded as the outcome of further work in this direction.

[3] Croonian Lectures, 1892, p. 38.

[4] Lehrbuch der Chemie, vol. ix., 1840, p. 418.

[5] Annalen der Chemie und Pharmacie, 1845, p. 45. Müller's Archiv, 1845, p. 230.

[6] Canstatt's Jahresberichte, 1845, p. 156.

[7] Lehrbuch der Physiologischen Chemie, vol. ii., p. 365.

[8] Canstatt's Jahresberichte, 1849. We were unable to find this paper in the original; our analyses are quoted from Bence Jones (vide infra).

[9] Journal of the Chemical Society, 1862, vol. xv., p. 201.

[10] Upon re-calculation it will be found, however, that this proportion is as 1 : 1·8.

[11] Croonian Lectures, 1892.

[12] Neubauer and Vogel, Analyse des Harns, 1898; Halliburton, Text-book of Chemical Physiology and Pathology, 1891, p. 732; Allen, Chemistry of Urine, 1898, &c.

[13] Berliner Klinische Wochenschrift, 1894, 913, 934.

[14] Leyden's Handbuch der Ernährungstherapie, Band II.,

monograph on uric acid[15] Schreiber questions the explanatory value of the quadriurate theory as far as concerns the phenomena of gout.

For the sake of clearness we purpose dividing this paper as follows: I. Examination of Sir William Roberts's chemical methods and critical repetition of his experiments. II. Natural and artificial urinary sediments. III. Decomposition by water of substances containing uric acid and urates, and new method of preparing them. IV. Physico-chemical observations on uric acid and its salts and the significance of the same. V. Conclusions.

I.

Sir William Roberts for the analysis of his so-called quadriurates relies upon the following method, which he terms "water-analysis."[16] The dry deposit was heated to about the boiling point with about 1000 times its weight of distilled water. The uric acid which crystallised out after 48 hours, was filtered off and weighed, the quantity remaining dissolved in the liquid being taken in regard. The filtrate which contained the biurate was decomposed with hydrochloric acid and the uric acid estimated as above. This procedure is open to the following objections. The estimation of uric acid by means of precipitation with hydrochloric acid (Heintz's method) is now obsolete, its inaccuracy and absolute unreliability for scientific purposes having been shown by many investigators.[17] The quantity of uric acid kept in solution and estimated at 0·0055 gramme per 100 cubic centimetres, although added to the free uric acid—the uric acid separated from the mixture of uric acid and biurate by water—does not seem to have been subtracted from the uric acid kept in solution as biurate. As the weight of substance in 100 cubic centimetres was 0·1 gramme, the error incurred amounts to 5·5 per cent. It is obvious that this error would affect seriously the amount of uric acid calculated as biurate. Further, Sir William Roberts seems to have overlooked the fact that all uric acid salts deposited from solution and dried at 36° C. (this being the case in his experiments) contain varying quantities of water constitutionally bound, amounting in the case of the magnesium salt to 35·9 per cent. The analyses made by the Croonian lecturer refer to substances dried at blood-heat, and therefore containing (*vide infra*) relatively high percentages of water. This fact, together with the errors of method mentioned above, seemed in our opinion to necessitate a repetition of his experiments.

We attempted to prepare so-called quadriurates by working under exactly the same conditions as Sir William Roberts, and obtained what, according to him, should correspond to a quadriurate of the following bases: sodium, potassium, ammonium, magnesium, and calcium. The substances were all dried at 36° C. and subsequently submitted to quantitative analysis, which consisted in estimating the amounts of water, bases, and uric acid. The water was estimated by drying at a temperature of 100° C. (if not otherwise stated) till the weight was constant. The bases were estimated in the usual manner. In order to obviate the errors by loss, &c., attendant upon the ordinary methods of uric acid estimation we determined its amount by nitrogen estimation (no other nitrogenous substances being present) and subsequent calculation. The nitrogen was estimated by Gunning's modification of Kjeldahl's method.[18] Each substance was examined microscopically with regard to the influence of water upon it.

SODIUM URATES.

According to Sir W. Roberts sodium quadriurate is formed from uric acid by the action of the acetates[19] and dimetallic phosphates[20] of this base. We prepared different samples by each method, using 3 per cent. and 5 per cent. solutions of the acetate of sodium, and 2 per cent. and 5 per cent. solutions of the phosphate.

A. Salts formed by the acetate method.—These salts were obtained in the following manner. The 3 per cent. and 5 per cent. solutions, as the case might be, were brought to the boiling point and then shaken up for a minute or so with an excess of uric acid, filtered hot, and the filtrate cooled rapidly on ice. A voluminous precipitate formed at once, the reaction of the liquid being slightly acid. The precipitate was filtered by the aid of a suction pump, washed with dilute and subsequently with absolute alcohol and ether and dried at blood temperature. These various manipulations were performed as quickly as possible. In the case of the 3 per cent. acetate solutions it was found that the water-free substances consisted almost entirely of uric acid. The first sample contained 99·41 per cent. uric acid to 0·59 per cent. sodium, the second sample contained 98·99 per cent. uric acid to 1·01 per cent. sodium. This fact has already been observed by Lipowitz who demonstrated *qualitatively* the nature of the precipitate.[21] In the case of the 5 per cent. acetate solutions the loss of water at 130° C. was estimated in the substance dried previously at 30° C. and found to be 8·08 per cent. (Table I.).

The "calculated composition" of the substance at 130° C. was arrived at by the following method of reasoning. 5·23 per cent. of sodium requires 38·20 per cent. of uric acid to form sodium biurate. If this quantity be subtracted from the total amount of uric acid (90·71 per cent.) the remainder (52·51 per cent.) represents the free uric acid. The amount of water lost at 130° C. (as well as retained at that temperature) is in molecular proportion to the sodium biurate corresponding to the sodium found. The same method of calculating was used in the following tables.

Another salt prepared in the same way with a 5 per cent. solution of acetate of sodium gave the following results (Table II.).

B. Salts formed by the phosphate method.—According to Sir William Roberts, "solutions of the common dimetallic phosphates of soda, &c., ... also take up uric acid very freely at blood heat, and the combination formed in this case in the first instance is likewise a quadriurate."[22] No analytical confirmation of this assumption is to be found. As Sir William Roberts does not give any directions as to the strength of the phosphate solution most suitable for this reaction we made some preliminary experiments on this point, using 1 per cent., 2 per cent., and 5 per cent. solutions. These solutions were treated with an excess of uric acid under constant agitation at blood heat for 20 minutes, filtered and cooled rapidly on ice. In the case of 1 per cent. solutions no immediate precipitation occurred, but took place on slightly acidifying with phosphoric acid, in which case the precipitate consisted of pure uric acid crystals. On another occasion a precipitate formed upon keeping the solution on ice for a considerable time without the addition of phosphoric acid. The precipitate showed under the microscope the characteristic uric acid crystals and was found upon analysis to consist to the extent of 97 per cent. of free uric acid. Similar observations have been made by Lipowitz[23] and especially by Liebig.[24] The latter regarded the phosphates as being the agents by which uric acid was kept in solution in the urine.

That pure uric acid is deposited if a solution of biurate of sodium, saturated at the body temperature, be mixed with a solution of monosodium phosphate and cooled, was shown by Voit and Hofmann[25] and confirmed by Bunge.[26] The conditions in their experiments are practically the same as those obtaining in our own, in which as the first products of interaction between uric acid and dimetallic phosphate, biurate and monometallic phosphate are formed, these latter reacting again as in the experiments of Voit and Hofmann and Bunge.

We next prepared urates of sodium by digesting 2 per cent. and 5 per cent. solutions of dimetallic sodium-phosphate with excess of uric acid at blood heat in the same way as before. The composition of the substances is shown in Table III.

From the above tables it is evident that neither by the acetate nor by the phosphate method could precipitates be obtained corresponding in composition to the hypothetical quadriurates. In the case of the phosphate method a fact of considerable interest is the constant presence of phosphoric acid in the urates formed. We were also able by the qualitative examination of many other similarly produced substances to demonstrate the presence of phosphoric acid whenever the precipitate was not entirely composed of uric acid. This latter fact, although evidently overlooked by Sir

[15] Über die Harnsäure, Stuttgart, 1899, pp. 107, 108.
[16] Loc. cit., p. 18.
[17] For complete literature of this subject see Warneke, Dissertation Göttingen, 1898.
[18] Zeitschrift für Analytische Chemie, 1889, p. 89. The uric acid used in our experiments was absolutely pure, being purified three times by Rausch's methods.
[19] Loc. cit., p. 28.
[20] Ibid., p. 85.
[21] Liebig's Annalen, Band xxxviii., p. 348.
[22] Loc. cit., p. 85.
[23] Loc. cit.
[24] Liebig's Annalen, Band l., p. 161.
[25] Sitzungsberichte der Bayrischen Akademie, 1867, p. 279.
[26] Bunge, Lehrbuch, p. 327.

TABLE I.—SODIUM SALT, ACETATE METHOD (LOT 1).

—	Substance dried at 130° C.			Composition of substance dried at blood temperature 36° C.
	Analytical figures.*	Calculated composition.		
Total uric acid ...	90·71 per cent.	—	—	The loss of water at 130° C. corresponds to 2 mol. of water calculated to the amount of biurate present. Found: 8·08 per cent.; calc.: 8·18. The substance is not a quadriurate, but a mixture of uric acid and sodium biurate, the latter holding 3 mol. of water, retaining 1 mol. H_2O at 130° C.
Free uric acid ...	—	52·51 per cent.	—	
Combined uric acid	—	38·20 per cent.	$NaH\bar{U}$ 43·43 per cent. require for 1 mol. H_2O, 4½	
Sodium	5·23 per cent.	5·23 per cent.		
Water...	4·06 per cent. (By difference.)	4·06 per cent.	4·09 per cent.	

* In order to obtain complete analytical data we originally intended to estimate the free uric acid directly by titration against a standardised piperidine solution (Comp. Brit. Med. Journ. 5, II. 98). But it was found that owing to the solvent action of piperidine on the biurate present exact results could not be obtained.

TABLE II.—SODIUM SALT, ACETATE METHOD (LOT 2).

—	Substance dried at 100° C.			Composition of substance dried at blood heat (36°).
	Analytical figures.	Calculated composition.		
Total uric acid ...	93·33 per cent.	—	—	The substance lost at 100° C. 2·66 per cent. water corresponding to 1 mol. of water calculated to the amount of sodium biurate present. Found 2·66 per cent.; calculated 2·45 per cent. The substance is therefore not a quadriurate, but a mixture of $\bar{U}$ and biurate, the latter holding 1½ mol. water at 36°, of which ½ mol. is retained at 100°.
Free uric acid ...	—	70·62 per cent.	—	
Combined uric acid	—	22·71 per cent.	$NaH\bar{U}$ 25·82 per cent. require for 1½ mol. H_2O.	
Sodium	3·11 per cent.	3·11 per cent.		
Water	3·56 per cent.	3·56 per cent.	3·65 per cent.	

TABLE III.—SODIUM SALTS, PHOSPHATE METHOD.

—	Analytical figures.		Calculated composition.				Conclusion concerning the composition of substance dried at 36° C.	
	2 per cent.	5 per cent.	2 per cent.		5 per cent.		2 per cent.	5 per cent.
Total uric acid ...	77·13	73·25	—	—	—	—	The substance is not a quadriurate but a mixture of phosphate of sodium, free uric acid, and biurate of sodium, the latter holding 1½ mol. of water constitutionally bound.	The substance lost at 100°C. 5·52 per cent. of water, corresponding to 1 mol. of water, calculated to the amount of biurate present: Found, 5·52 per cent.; calculated 5·45 per cent. The substance is therefore not a quadriurate, but consists of a mixture of phosphate of sodium, free uric acid, and biurate of sodium, the latter holding 1½ mol. of water, of which 1 mol. is given off at 100° C.
Free uric acid ...	—	—	22·65	—	22·34	—		
Combined uric acid	—	—	54·48	$NaH\bar{U}$ 61·94 require for 1½ mol. of water.	50·91	$NaH\bar{U}$ 57·88 require for 1½ mol. of water.		
Sodium	9·71	10·65	7·46		6·97			
Phosphoric acid ...	3·47	5·98	—		—			
Sodium-phosphate	—	—	6·94	—	11·96	—		
Water	—	—	8·47 (By difference.)	8·79	7·82 (By difference.)	8·17		

TABLE IV.—POTASSIUM SALTS, ACETATE METHOD.

—	Analytical figures.					Calculated composition.									
	3 per cent.			5 per cent.		3 per cent.						5 per cent.			
	I.	II.	III.	I.	II.	I.		II.		III.		I.		II.	
Total uric acid ...	75·91	81·49	—	84·57	75·60	—	—	—	—	—	—	—	—	—	—
Free uric acid ...	—	—	—	—	—	3·65	—	47·42	—	—	—	50·11	—	31·62	—
Combined uric acid	—	—	—	—	—	72·06	88·79 $K\bar{H}\bar{U}$ require for 1 mol. water.	34·07	41·98 $K\bar{H}\bar{U}$ require for 3 mol. water.	—	$K\bar{U}H1H_2O$ require.	34·46	$K\bar{H}\bar{U}$ 42·46 require for 2 mol. water.	43·98	$K\bar{H}\bar{U}$ 54·29 require for 3 mol. water.
Potassium... ...	16·73	7·91	17·60	8·00	10·21	16·73		7·91		17·60	17·41	8·00		10·21	
Water...	7·36	10·60	8·65 Loss at 130°.	7·43	14·19	7·36	7·72	10·60	10·96	8·65	8·04	7·43	7·38	14·19	14·13
	By difference.			By difference.											

Conclusions concerning the composition of substance dried at 36° C.

3 per cent.			5 per cent.	
I.	II.	III.	I.	II.
The substance is nearly pure biurate of potassium, consisting of 3·85 per cent. uric acid and 96·15 per cent. of biurate, the latter holding 1 mol. H_2O constitutionally bound.	The substance is not a quadriurate, but a mixture of uric acid and biurate, the latter holding 3 mol. of water constitutionally bound.	The substance is pure potassium biurate, holding 1 mol. of water constitutionally bound.	The substance lost at 100° C. 3·26 per cent. of water, corresponding to 1 mol. of water calculated to the amount of $K\bar{H}\bar{U}$ present. Found, 3·36 per cent.; calculated, 3·69 per cent. The substance is therefore a mixture of $\bar{U}$ and $K\bar{H}\bar{U}$, the latter holding 2 mol. of water.	The substance is not a quadriurate but a mixture of uric acid and biurate, the latter holding 3 mol. of water constitutionally bound.

William Roberts, was observed as early as 1844 by Golding-Bird[27] and independently by Pfeiffer,[28] who made some quantitative estimations.

POTASSIUM URATES.

The potassium salts were prepared in a manner analogous to the sodium compounds, potassium acetate being used. Two strengths of potassium acetate solutions were taken—namely, 3 per cent. and 5 per cent. The precipitates were filtered, washed, and dried in the usual way. The analytical results are expressed in Table IV.

From this table it is evident that in no case was a precipitate formed to which the constitution of potassium quadriurate could be ascribed.

AMMONIUM URATE.

According to Sir William Roberts a quadriurate of ammonia is obtained by the method described below.[29] The product, however, was not submitted to analysis nor was any further proof of its existence mentioned. Following the directions we prepared the hypothetical quadriurate as follows: 5 grammes of uric acid were boiled in a litre of a 1 per cent. solution of liquor ammoniæ. The solution was filtered hot and rapidly cooled on ice. An abundant stream of carbonic acid was then passed through it and the precipitate obtained was washed and dried in the usual way. All these manipulations were carried out as rapidly as possible. Table V. gives the result of the analysis.

TABLE V.—*Ammonium Salt.*

—	Analytical figures.	Calculated for ammonium biurate + 2 mol. H_2O.	Calculated for ammonium quadriurate.
Total uric acid ...	76·00 per cent.	76·02 per cent.	95·18 per cent.
Ammonia	8·27 ,,	7·69 ,,	4·82 ,,
Water	15·73 ,, (By difference.)	16·29 ,,	—

As will be seen from this table the salt dried at 36° C. is not a quadriurate, but ammonium biurate + $2H_2O$.

CALCIUM AND MAGNESIUM URATES.

According to Sir William Roberts the quadriurates of calcium and magnesium are prepared in the following manner.[30] The calcium salt is obtained by dissolving 0·5 gramme of uric acid in 100 cubic centimetres of cold lime water. To the filtered solution acetic acid was added, drop by drop, until neutralisation was approached. An abundant precipitate was then thrown down, which was caught on a filter, washed with rectified spirit, and dried. Magnesium quadriurate was prepared by digesting uric acid and calcined magnesia both in excess and distilled water at blood heat with frequent agitation for about ten minutes, the mixture was filtered warm, and the filtrate was rapidly cooled under a running tap of cold water. The precipitate was filtered, washed, and dried in the usual manner. In neither case is any analysis given in support of the supposed quadriurate composition of the respective product. We followed exactly Sir William Roberts's directions and prepared two samples of the magnesium and one of the calcium salt. Tables VI. and VII. express the results of the analyses.

TABLE VI.—*Magnesium Urates.*

—	Analytical results. I.	Analytical results. II.	Calculated for magnesium biurate + $12H_2O$.	Calculated for magnesium quadriurate.
	Per cent.	Per cent.	Per cent.	
Total uric acid ...	61·68	60·10	60·01	96·54
Magnesium ...	4·45	4·38	4·05	3·46
Water	33·87	35·52	35·94	—
	By difference.			

It will be seen from the above table that neither of these salts is a quadriurate and that whereas No. II. corresponds almost exactly to the formula $\overset{U}{\underset{U}{Mg}} + 12H_2O$, No. I. approaches the required figures very nearly, containing only a slight excess of uric acid.

TABLE VII.—*Calcium Urate.*

—	Analytical results.	Calculated composition.		—
	Per cent.	Per cent.		
Total uric acid	76·51	—	—	The analysis of this salt shows that it consists of a mixture of uric acid and calcium biurate, the latter holding 14 mol. of water constitutionally bound. At 100° C. it lost 12·00 per cent. of water corresponding to 8 mol. of water calculated on the amount of biurate present. Calculated, 11·84 per cent.; found, 12·00 per cent.
Free uric acid	—	49·04	—	
Combined uric acid	—	27·47	30·47 per cent. calcium biurate require for 14 mol. H_2O	
Calcium ...	3·29	3·29		
Water ...	20·20	20·20	20·72.	

II.

NATURAL AND ARTIFICIAL URINARY SEDIMENTS.

So far as we are aware the only analyses approaching to completeness of naturally occurring urinary sediments are those made by Scherer and Bence Jones.[31] Since the number of these is somewhat scanty and the most recent was made in 1862 we thought it would be advisable to add to their number, especially as we had the opportunity of getting a constant supply of naturally-occurring deposit from the same person. The quantity necessary for analysis was collected in the following way. The urine directly upon being voided was rapidly cooled and the deposit allowed to settle. It was then filtered off by the aid of a suction pump, washed with alcohol and ether, and dried at 36°C. The fractions thus collected were mixed[32] together and kept in a stoppered bottle until sufficient for the purposes of analysis was obtained. The analysis gave the following results:—

Natural Urinary Sediment.

	Analytical numbers.		Calculated to water, &c., free substance.
Uric acid	73·40	.....	95·69
Ammonia	0·46	.....	0·59
Potassium	1·74	.....	2·26
Sodium	0·23	.....	0·29
Magnesium	0·06	.....	0·08
Calcium	0·34	.....	0·44
P_2O_5	0·48	.....	0·63
Water, colouring matter, and loss	23·29	.....	—

The amount of phosphoric acid present almost exactly corresponds to the amount required to satisfy the calcium (required for 0·63 per cent. phosphoric acid 0·53 per cent. calcium; found 0·44 per cent.). If the amount of uric acid be calculated which is required to form biurates with the remaining bases it will be found to be 19·33 per cent., this subtracted from the total uric acid leaves 76·36 per cent. free uric acid. It is therefore evident that the sediment in question consisted to a large extent of free uric acid mixed with the biurates of sodium, potassium, ammonium, and magnesium, and some phosphate of calcium. The proportion of combined to free uric acid is about : : 1 : 4.

With regard to the relative proportion of the different

[27] London Medical Gazette, 1844, p. 885.
[28] Loc. cit.
[29] Loc. cit., p. 27.
[30] Loc. cit., p. 27.
[31] Vide supra. These analyses seem to be unknown to Dr. Luff, who recently (Pathology and Treatment of Gout, London, 1898, p. 85) gives a partial analysis of a urinary sediment derived from febrile patients, which we shall consider later.
[32] Before adding each fraction, however, to the common stock it was examined microscopically with regard to its uniformity, absence of uric acid, or other crystals, and behaviour with water. If it showed any crystallize constituents (oxalates or phospates, &c.) or failed to give the formation of uric acid crystals upon the addition of water, it was rejected. It is interesting to note that each fraction weighed not more than 0·03 gramme, although originally it had a bulky appearance.

metals Table VIII. will be of interest as giving the result of all the analyses so far published in this connexion[33]:—

TABLE VIII.—*Relative Percentage Proportion of Metals in Natural Urinary Sediments.*

—	Authors'.	Scherer. I.	Scherer. II.	Scherer. III.	Scherer. IV.	Bence Jones. I.	Bence Jones. II.	Bence Jones. III.	Luff.
Ammonium ...	18·33	42·25	12·78	10·47	42·26	46·20	37·29	20·45	46·0
Potassium ...	79·19	42·22	11·75	27·54	42·32	36·05	41·96	64·29	14·0
Sodium	2·00	11·41	17·42	1·39	11·41	19·75	20·75	15·26	40·0
Magnesium ...	2·48	—	—	—	—	—	—	—	—

It will be seen from the above table that the proportion of the metals varies in each case. Generally the amount of ammonium is very high. The two exceptions to this are our own analysis and Bence Jones's No. III., which latter also in the proportion of the other bases approaches most nearly to our own. The high ammonium percentage is probably to be explained by decomposition. The same irregularity as in the proportion of the different metals is also evident in the case of the free and combined uric acid (*vide supra*). Sir William Roberts[34] admits that his analysis, which was not published, of naturally occurring amorphous urinary sediments, gave results discordant with the quadriurate theory. This he explains by decomposition having taken place during the process of collection and to the fact that the sediments were derived from different urines. (In the case of the sediments collected and analysed by us these objections do not apply.) Nevertheless, he assumes that in perfectly natural urine and sediment uric acid exists in the form of a quadriurate. As proof of this he brings forward only *one* analysis of an *artificially prepared* sediment which he regards as the counterpart of the natural one. The process by which he obtained the sediment is essentially the same as the methods described above for the preparation of potassium and sodium quadriurate, except that urine was taken as a solvent instead of water. These experiments we repeated, following exactly Sir William Roberts's directions[35] (potassium acetate process). Two samples were prepared, different urine being used. Table IX. gives the results of the analysis:—

TABLE IX.—*Artificial Urinary Deposits.*

—	Analytical numbers. Lot I. —	Analytical numbers. Lot I. Water-free	Analytical numbers. Lot II. —	Analytical numbers. Lot II. Water-free	Actual composition. Lot I. —	Actual composition. Lot I. —	Actual composition. Lot II. —
Total uric acid	34·96	36·78	27·26	39·14	Free $\bar{U}$	17·47	10·17
Ammonium ...	0·33	0·34	3·98	4·33	NH_4U	3·70	49·30
Potassium ...	9·35	9·56	3·48	3·99	$KH\bar{U}$	50·36	20·55
Sodium	3·24	3·39	2·67	2·24	$NaH\bar{U}$	23·00	19·41
Water, colouring matter, &c.	2·44	—	12·21	—	—	—	—

From this table it will be seen that the precipitate formed under the above conditions is not of constant composition (as is also the case in the normal sediments). The total quantity of the bases as well as their individual amounts vary within wide limits. Further, the quantity of free uric acid is also variable and in neither instance satisfies the quadriurate hypothesis. The relative percentage of the bases and the amounts of free and combined uric acid are given in Table X. The high proportion of potassium in the first analysis is explained by the fact that the urine, derived from the same subject as the urinary sediment analysed above, was originally rich in potassium, which was further increased by the method used (addition of potassium acetate). In the second analysis the urine originally was rich in ammonium.

[33] These figures are calculated from the analysis of the respective authors, with the exception of the last, which is simply copied.

[34] Loc. cit., p. 10.

[35] Loc. cit., p. 14.

TABLE X.—*Relative Percentage Proportion of Metals in Artificial Urinary Sediments.*

—	I.	II.
Ammonium	2·56	41·79 parts per 100
Potassium	71·93	36·53 parts per 100
Sodium	25·51	21·68 parts per 100
Combined uric acid	69·31	73·97
Free uric acid	17·47	10·17

Luff, with the idea of supplementing Sir W. Roberts's analysis of artificial urinary sediment, estimated the metals in a mixed specimen of urinary sediment derived from fever patients. From his results (given above) he draws two definite conclusions. First, that generally the proportion of bases in urinary sediments is that found in his one analysis. This appears to us unjustified in the light of the analytical figures of other observers and our own results given above. Secondly, that the bases are present in the form of quadriurates. This conclusion is still more unjustified in that no estimation of the uric acid was made and thus no ground for his subsequent theoretical calculations exists.

III.

DECOMPOSITION BY WATER OF SUBSTANCES CONTAINING URIC ACID AND URATES AND NEW METHOD FOR PREPARING THEM.

We have mentioned the characteristic decomposition under the action of water of natural amorphous urinary sediment and the explanation given to this phenomenon by Bence Jones, and subsequently Sir W. Roberts upon the assumption of the existence of a true and definite chemical compound of biurate and uric acid (one molecule of each). Our own experiments have demonstrated that in naturally occurring and artificially prepared urinary sediments and urates the uric acid does not occur in this form, and hence that there is no ground for the quadriurate hypothesis. These substances, consisting of mixtures of uric acid and biurates, show under the influence of water the formation of uric acid crystals.[36] We shall in the future refer to them as decomposable urates.

The decomposition of these substances by water may best be seen under the microscope. For this purpose it is always advisable to have a relatively large quantity of water. If a very small quantity of the substance be intimately mixed with water on a slide and observed under the microscope, in a very short time the formation of transparent crystals will be seen. These crystals assume either ovoid or rectangular plate form, sometimes intermediate forms are observed, and occasionally the ovoid-shaped crystals pass completely into rectangular plates, probably owing to the influence of the dissolved biurate.

Since the substances showing this decomposition are mixtures of uric acid and biurate as shown by our preceding analyses, this reaction cannot be regarded as characteristic (and as such proving the presence) of quadriurates.[37] This being the case it should follow that any mixture consisting of biurate and uric acid should show this reaction which must be regarded as the dissolving out by water of the more soluble constituent, biurate, and the leaving behind of the less soluble one, uric acid.

That, however, another factor comes into play is evident from the following experiment. If a mixture in any proportion of finely powdered crystalline uric acid and crystalline biurate of sodium be treated with water under the microscope, the dissolving out of the biurate certainly takes place, but the uric acid remaining behind does not assume the characteristic crystalline form, shown by it when liberated from amorphous decomposable urates. It seems therefore that a necessary factor for this reaction is the presence of uric acid in an amorphous form. This obviously happens in the formation of the decomposable urates by the described methods in which an intimate mixture of uric acid and biurates, both in the amorphous

[36] Some of the naturally occurring amorphous urinary sediment examined by us, however, did not show this decomposition with water. This has been observed by Bence Jones and Pfeiffer. Some of the artificially prepared urates consisting as the analysis showed of nearly pure uric acid were also, from obvious reasons, not decomposed in this manner.

[37] Sir William Roberts frequently observed that substances not quadriurates showed nevertheless this reaction with water.

form, is precipitated from solutions by rapid cooling. If we examine more closely the *modus operandi* of this process we find that the first stage consists in the establishment of a state of equilibrium between the uric acid and the salt in question which gives rise to the formation of biurate in an amount proportional to the original contents of the solution in the salt; the second stage consists in the saturation of the liquid with uric acid. The amount of this substance taken up (apart from the ordinary physical conditions) depends on the quantity of the salt originally present in the solution. By varying the percentage of the salt corresponding amounts of biurate and uric acid are precipitated on cooling. The precipitate may thus range in composition from pure uric acid to pure biurate. From this it follows that it is possible to hit [38] by accident conditions which will produce a precipitate consisting of uric acid and biurate in equimolecular proportions—i.e., a so-called quadriurate. We succeeded in bringing further proof of the correctness of the above view by preparing decomposable urates by an original method. This consisted in taking solutions saturated at boiling point with biurate and treating the clear filtered solution with an excess of uric acid also at boiling point. Assuming the quadriurates to have the characteristics ascribed to them by Sir William Roberts this method of preparation necessarily excludes their formation in that they are, according to him, decomposed by boiling water. Upon cooling on ice the solution obtained above, an amorphous precipitate was formed which, after filtering, washing, drying, &c., in the usual way, showed under the microscope the characteristic decomposition. Two samples of the potassium compound prepared in this manner were submitted to analysis. The percentage results are shown in Table XI. :—

TABLE XI.—*Artificial Decomposable Potassium Urates.*

—	Analytical figures.		Calculated composition.			
	I.	II.	I.		II.	
	Dried at 130° C.	Dried in vac.				
Total uric acid	82·53	78·96	—	—	—	—
Free uric acid	—	—	30·53	—	31·49	—
Combined uric acid	—	—	52·00	KHU 63·82 require for 1 mol. H_2O	47·56	KHU 57·60 require for 2 mol. H_2O
Potassium ...	11·82	10·04	11·82		10·04	
Water	5·65	10·00	5·65	5·57	10·00	10·19
	By difference.					

Sample I. was dried at 130° C. and lost at that temperature 11·00 per cent. of water. This amount corresponds to two molecules of water calculated to the biurate present (calculated 11·16 per cent.) The substance consists of a mixture of uric acid and potassium biurate, the latter holding three molecules of water. Sample II. was dried in vacuo and lost 5·20 per cent. of water corresponding to one molecule of water calculated to the amount of biurate present (calculated 5·12 per cent.). The substance therefore, as in the former case, was a mixture of uric acid and potassium biurate, the latter holding three molecules of water. It will be seen that the potassium biurate moiety of this mixture contains three molecules of water, loses one in vacuo, and one at 130° C. The last molecule is strongly bound, but appears to be slowly driven off at 150° C., at which temperature, however, the substance itself is partly decomposed, assuming a brownish tint. We also prepared the corresponding decomposable sodium urate,[39] the analysis of which is shown in Table XII.

[38] We presume this is what Sir William Roberts means by "a somewhat nice adjustment," p. 17, loc. cit.

[39] The exact procedure was as follows. Five grammes of crystallised sodium biurate were boiled with 600 cubic centimetres of water, filtered hot; the filtrate was boiled again with five grammes of uric acid. On cooling rapidly on ice a very small quantity of crystalline uric acid at first appeared, which was rapidly filtered off. The filtrate gave upon prolonged cooling an amorphous precipitate, which after being filtered and washed in the usual manner, gave the decomposition with water.

TABLE XII.—*Artificial Decomposable Sodium Urate.*

—	Analytical figures.	Calculated composition.	
Total uric acid	75·31 per cent.	—	—
Free uric acid	—	13·96 per cent.	—
Combined uric acid	—	61·35 ,,	69·75 per cent. require for 2½ mol. of water.
Sodium	8·40 per cent.	8·40 ,,	
Water	16·29 ,,	16·29 ,,	16·44 per cent.

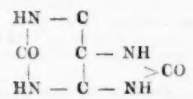
The substance lost at 130° C., 9·80 per cent. of water, corresponding to one and a half molecules calculated to the amount of biurate present. The substance, therefore, is a mixture of uric acid and biurate of sodium, the latter holding two and a half molecules of water, of which one molecule is retained at 130° C.

From the preparation and analysis of the above substances it is obvious that artificial mixtures of uric acid and biurate may be obtained which are decomposable by water with the formation of uric acid crystals, and that therefore this behaviour does not prove the presence of a quadriurate.

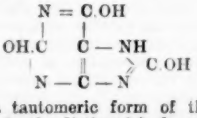
IV.

PHYSICO-CHEMICAL OBSERVATIONS ON URIC ACID AND ITS SALTS AND THE SIGNIFICANCE OF THE SAME.

The now generally accepted constitutional formula of uric acid (first suggested by Medicus [40] and subsequently definitely established by the researches of E. Fischer [41]) is the following :—



Although this formula is in accordance with most of the reactions exhibited by this substance it does not provide an explanation of the existence of the now known six monomethyl-uric acids,[42] nor of its acid nature. A formula, however, fulfilling these requirements (as well as some others into which it is beside our purpose to enter here) is the following :—



which represents a tautomeric form of the acid. These two may be conveniently distinguished as the lactam and lactim formula respectively. According to Fischer the two substances corresponding to the above formulæ actually exist, the amorphous uric acid, as liberated from its salts in cold solution by acids, corresponding to the lactim form. This latter is distinguished from the crystalline form by its property of holding molecularly bound water. The crystals formed gradually from the amorphous acid, through the influence of water on standing, still contain two molecules of water according to the observations of Fritzche [43] and Matignon.[44] These transparent crystals probably represent an intermediary stage between the lactim and lactam forms, still containing two or one NC(OH) groups. By gentle heat, or on standing over sulphuric acid, they loose these two molecules of water and at the same time their transparency, being completely transformed into the lactam form.[45] It is the lactim form, however, which explains the salt-forming capacity of the acid.

The uric acids salts also occur in two distinct physical states, namely the amorphous and crystalline. We should explain this by assuming that these two forms are due to the presence of the tautomeric groups, the amorphous (lactim form) containing still two or one NC(OH) group, the crystalline (lactam form) containing only NH.CO groups.

[40] Liebig's Annalen die Chemie, 175, 243.

[41] Bericht der Deutschen Chemischen Gesellschaft, vol. xvii., 1776, &c.

[42] Ibid., vol. xxxii., 2721.

[43] Journal für Praktischer Chemie, 17/56, 1839.

[44] Bulletin de la Société Chimique (3), 11, 571, 1894.

[45] A proof for the lactam formula of the crystalline uric acid might be seen in the behaviour of the dry substance with dry ammonia, under which conditions, owing to the absence of OH groups (according to this hypothesis), no salt is formed. Compare Bensch, Liebig's Annalen, 54, 201.

This assumption would explain the results of Baumgarten [46] who observed the transformation of the amorphous sodium biurate (precipitated from saturated solutions of sodium biurate by sodium phosphate or other salts) into the crystalline without any change of chemical composition, except the loss of half a molecule of water. We can confirm Baumgarten's observations in that we prepared sodium biurate in a different way, namely, by dissolving uric acid in weak (from ½ to 1 per cent.) solutions of sodium bicarbonate at boiling point. If such a solution be rapidly cooled amorphous sodium biurate is deposited (spheroids), on slowly cooling, however, the salt comes down in the crystalline form (needles). The former changes into the latter on standing or under the influence of water. Analysis of these two modifications showed that they were both pure biurate of sodium, the amorphous containing (air dry) two molecules the crystalline one and a half molecules of water. The existence of these two forms of urates, the transformation of the one into the other, and the above view with regard to their constitution may have an important chemico-pathological bearing. The extent to which the one must be regarded as physiological and the other as pathological, as well as the study of the conditions under which their transformation takes place in the liquids of the body, may obviously be of interest in gout so far as concerns the physico-chemical basis of this disease.

With regard to the state of uric acid and its salts in solution the following observations and remarks may be of interest. That uric acid is a very weak acid is known. Crystalline uric acid has no influence on moistened litmus paper in the cold. Hot saturated solutions of absolutely pure uric acid, however, show a distinct acid reaction with sensitive litmus and lacmoid. This is explained by the fact that in solutions the acid has the tautomeric form as described above. Uric acid being such a weak acid it is to be expected, according to modern physical chemistry, that its salts would be dissociated in solution. A qualitative proof of this would be that the solution showed an alkaline reaction. The neutral salts actually show a strongly alkaline reaction and are probably therefore dissociated in solution. Heretofore the so-called acid urates have been regarded as possessing a neutral reaction, probably upon the authority of Bentsch,[47] who first described and analysed them. We found, however, by carefully testing the reaction of solutions of these salts in an absolutely pure state with sensitive indicators that they reacted alkaline. The indicators we made use of were purified sensitive litmus, lacmoid, methyl-orange, Congo red, and rosolic acid. It was possible to show that for instance a solution of sodium biurate containing 1 in 100,000 reacted still distinctly with lacmoid, methyl-orange, and Congo red.[48] A further proof of the dissociation of these urates in dilute solution is the fact that the actual appearance of characteristic uric acid crystals can be observed under the microscope if pure acid urates of potassium or sodium, be treated with a large excess of water. This phenomenon is different from that exhibited by decomposable urates in so far as it requires a longer time—from half an hour to an hour. These observations require quantitative proof which would probably be afforded by the application of physico-chemical methods (molecular weight estimation in solution, &c.).

From what we have said above it follows that it is by no means necessary to assume that uric acid circulates in the fluids of the body as a urate, the small quantity present being probably hydrolytically dissociated. Other considerations have led O. Minkowski to hold a similar view.[49] This he expresses as follows: "After all we have no reason to assume that uric acid circulates in the blood as an alkaline compound."

V. CONCLUSIONS.

I. There is no evidence of the existence of a third order of uric acid salts—i.e. quadriurates—either in the artificial or natural amorphous urinary deposits or in the fluids of the body. Under these circumstances we regard it advisable to discontinue the use of the term "quadriurate."

II. The substances obtained artificially under the conditions supposed to produce quadriurates consist of mixtures in varying proportions of uric acid and biurates, or of pure uric acid or pure biurates alone.

III. Natural amorphous urinary deposits consist of a mixture of uric acid with urates of sodium, ammonium, potassium, calcium, and magnesium (containing in most cases in addition phosphoric acid).

IV. The property of some natural and artificial amorphous urates of showing the formation of uric acid crystals under the influence of water is due to the dissolving out of the more soluble biurate moiety and a change in physical state of the remaining uric acid.

V. Any theory concerning the pathology or treatment of gout or the uric acid diathesis built upon the assumption of the existence of quadriurates requires reconsideration.

VI. The existence of two forms of uric acid (the tautomeric lactam and lactim form) may explain the variation in the physical and physiological behaviour of this acid and its salts.

[46] Liebig's Annalen, 117, 109.
[47] Loc. cit.
[48] In all these tests the reaction exhibited by the salt solution was compared with that shown by an equal volume of pure distilled water and the same indicator.
[49] Ernährungstherapie bei Harnsäure-Diathese. V. Leyden's Handbuch der Ernährungstherapie, vol. ii, p. 507.

THE MANAGEMENT OF THE ANÆSTHETIC IN CASES IN WHICH RESPIRATORY IMPEDIMENT EXISTS.[1]

BY DUDLEY W. BUXTON, M.D., B.S., M.R.C.P. LOND.,
ANÆSTHETIST TO UNIVERSITY COLLEGE HOSPITAL.

IN bringing before this society a communication dealing with certain incidents in surgical anæsthesia I propose to group my remarks about certain cases taken from note-books. The cases which I have selected are those in which from various reasons either anatomical, pathological, or other, interference with respiration occurs. It is clear that if the obstruction exists at the time of giving the anæsthetic and gives evidence of its presence the anæsthetist is placed upon his guard. However, it often happens, as the sequel will show, that although such obstruction exists it does not reveal itself until the progress of anæsthesia introduces a new factor in the problem, while in other cases no obstruction exists as such until the anæsthetic itself leads to its production. All agree that do what we may sooner or later some of us are bound to meet with cases which present symptoms or phenomena in the progress of narcosis which confound our hard-and-fast rules while they jeopardise the lives of our patients. I have arranged some such cases and hope to reason out the causation of the difficulties which they present and to suggest how to obviate serious embarrassments.

As it is important to make my meaning clear it may be well to explain what should be understood by certain phrases. "Primary circulatory failure" may be taken to connote a depression of the circulation which is preceded by no interference with respiration. It is no doubt impossible, speaking physiologically, for any foreign gases or vapour to enter the blood through the epithelium of the lung cells without producing some influence—probably local—upon respiration. It is, I submit, quite possible for marked circulatory depression to arise without there being any apparent anterior respiratory changes of an injurious character. "Secondary circulatory failure" may be taken to mean a circulatory depression consequent upon and causally related to interference with the functions of respiration. It is the respiratory embarrassments which culminate in this secondary circulatory failure with which I propose, to-night, to deal.

There is, I take it, no doubt that the pulmonary circulation is materially assisted or hindered according as (1) the thoracic movements are maintained and are competent; and as (2) the gaseous composition of the blood passing along the veins and arteries of the pulmonary circulation is maintained at its physiological standard. The undue deprivation of oxygen and the excessive venosity of the blood do undoubtedly tell in the direction of impeding the pulmonary circulation and of hampering the efficient and effectual emptying of the heart. Obstruction to respiration may occur at various points and be due to various causes. Let us first consider those arising in the upper air passages. In some the cause is evident, it is well recognised and

[1] A paper read before the Harveian Society of London on May 17th, 1900.

easily detected and requires very little to be done in order to remedy it. In other cases this is not so.

Obstructed breathing due to blocking in the upper air passages commonly arises from enlarged tonsils with a partially occluded naso-pharynx, or from pharyngeal abscess, enlarged tongue, or old adhesions between the posterior wall of the pharynx and the tissues about the faucial arches. These cases may, in many instances, however, be extremely difficult to manage. Two cases I will mention as extreme examples of the condition. In both the patients were very young children and both presented extreme degrees of difficulty and danger.

CASE 1.—The patient was under three years of age and the tonsils were so large as to meet; they were inflamed and their surfaces were covered with glutinous mucus through which the air passed with difficulty. The child was being asphyxiated and tonsillotomy was determined upon as being necessary to give relief. As the little patient was very weakly and had to be in the sitting posture I gave him ether, keeping the mouth open throughout the inhalation. The choice of the anæsthetic was further made with the view of producing a very transient narcosis in case the protective effect of the reflexes was required. The operation was entirely successful and the ether did not add to the respiratory difficulties.

CASE 2.—In this case the child was aged two years and had had very frequent convulsions. The naso-pharynx was badly blocked by tonsils and growths and the little patient was liable to severe convulsive seizures at any moment. I gave the A.C.E. mixture at first until the child was dazed and subsequently ether and oxygen, with an excellent result. The removal of the obstruction had the most salutary effect upon the general condition of the patient.

There is a large group of cases in which difficulties arise through some mechanical interference with respiration. In these the use of anæsthetics may not be the actual cause, but it has the direct effect of intensifying the obstruction. Of these I have notes of many cases and I propose to read a few. The obstruction in some instances is not noticeable before the anæsthetic is commenced; of this class we have goitres without noticeable stridor and more especially in those cases in which the neck of the patient is short and thick and the tissues are hard and resistant. One sees the acme of this condition in the disease called angina Ludovici when the throat is surrounded by brawny hard structures which fix the jaw and practically render the trachea and larynx a rigid inelastic tube. In bad cases of lymphadenoma and lymphadenitis a similar necklet of dense tissues is met with. But it is by no means these obvious conditions themselves warning the anæsthetist of rocks ahead which alone are met with. It is frequently in thick-set plethoric persons whose chests are rendered more or less immobile by emphysema or fat that the greatest dangers arise. A typical instance of this occurred in my practice not long ago.

CASE 3.—The patient, a stout woman of between 40 and 50 years of age, was operated upon for mammary cancer. Beyond the fact that the patient had a short neck, high shoulders, and a slightly rigid chest there was no obvious reason for fearing difficulty. She had nitrous oxide gas followed by ether and she passed into the third degree of narcosis without much difficulty, although there was more duskiness than I liked. She was given air frequently and the head was kept high. The blueness increased without interference with chest movements or pulse. It was then found that owing to the rigidness of the muscles of her neck and jaws the chin could not be advanced nor could the mouth at first be opened. However, after some seconds the teeth were separated and the mouth was opened. The face was now purple and the signs of asphyxia were well marked. Rhythmic traction on the tongue was done and the surgeon was warned that laryngotomy might be required. He remarked that the operation would under the circumstances be well-nigh impossible. The tongue was swollen and all the faucial tissues were engorged. I passed my finger over the tongue and by hooking up its base with the epiglottis succeeded in starting respiration. As soon as air began to enter the chest the spasm passed slowly off in a few moments and the operation was continued and brought to a successful termination. The ether was replaced by chloroform which was not well taken. I kept a gag separating the jaws during the rest of the administration.

Two cases have been reported recently in which ether was given to patients with goitres and in both cases death from asphyxia resulted. I think when obvious impediment to respiration exists in the upper air passages, as in the case of goitrous persons, chloroform given from Junker's inhaler is far safer than ether, because when the patient under ether coughs or is salivated the cyanosed state is much aggravated. I cannot, however, disguise from myself that chloroform has its dangers in such cases and that if difficulties arise under its use the patient is placed in great jeopardy as the highly venous blood will certainly render him more receptive to a lethal dose. I have notes of cases belonging to this category in which the condition of obstruction occurred in the puffy venously congested tissues of chronic alcoholics. In such persons the respiratory difficulty is associated with two conditions equally difficult to relieve. In the first place most alcoholics have a badly acting heart; one believes the muscle to be degenerated and one knows that its rhythm is irregular and often chaotic. It is certainly, in most instances, extremely ill-equipped to do its work in the face of increased resistance, such increased resistance as arises when the pulmonary circulation is disorganised. But in the second place these patients are usually extremely restless and prone to muscular rigidity and clonus. I remember one instance which at the time caused me great anxiety and chagrin.

CASE 4.—The patient, an old man, had to undergo a rectal operation. He was sodden with drink, with puffy, swollen face and an extremely irregular, feeble heart, and all his tissues were engorged with blood. Under chloroform he struggled furiously and his condition was alarming while with ether the restlessness and the cyanosis were so excessive that it was with the greatest difficulty that he could be kept sufficiently still for the surgeon's purposes, and this in spite of the anæsthetic being given freely and care being taken to avoid asphyxial complications.

Of course, such cases are exceptional, but many occur which differ only in degree from those described. The practical lessons which these experiences have taught me may be summed up as follows. Every person must be treated as a problem, it may be put thus: Given the patient, find the best anæsthesia and the most suitable way of administering it. I am sure only experience can solve the problem. In cases of goitre I should in most cases regard chloroform as the safest anæsthetic. As the patient passes under its influence stridor usually becomes marked. This I believe arises from the fact that the trachea has lost much of its rigidity as a result of the pressure to which it has been subjected, and as soon as the muscles and intermuscular fasciæ become lax owing to the chloroform the support they usually give to the trachea is lost and so it collapses. Certainly in exophthalmic goitre, and to a less degree in other forms of thyroid disease, there is a great tendency to salivation and secretion of mucus, which under ether becomes so accentuated as to cause danger from blocking the bronchi and pulmonary alveoli. The importance of giving a minimal dose of an anæsthetic in these cases cannot be overestimated. When the patient has passed into the anæsthetic degree and the skin incision is made the chloroform should be given less freely although continuously. The method of giving chloroform intermittently is never advisable. It nearly always brings on vomiting and often dangerous faintness. The patient is for ever hovering between a condition of over-narcotisation and one of resumption of consciousness. It is one great advantage of inhalers such as Junker's over the open method that you can give chloroform in great dilution but maintain the continuity of the inhalation. With skill and judgment the drop-bottle method with a Schimmelbusch's mask will give a good result, but it is inferior to a regulating inhaler.

Posture, again, is one of our difficulties in surgical anæsthesia. It often happens in many operations that the position of election—namely, when the patient is lying on his back with his head turned to one side and slightly extended—cannot be adopted. In cases of laminectomy, in operations undertaken for the relief of empyema, in Estlander's operation, and in Kraske's operation for high removal of gut the patient is placed more or less on his face. Also in some gynæcological procedures when the semi-prone posture is adopted. I have found that when chloroform is given for these cases the hampered chest movements, especially when the patients are heavy and loosely knit, produce some cyanosis. In prolonged operations this may become very marked unless the precaution is taken to adapt the dose of the anæsthetic to the changed condition of the respiration. Nor can one, I think, wish for a

better guide than the rhythm and force of respiration in these cases. Provided the patient is completely anæsthetised before the change of posture is made it will be found that as the breathing becomes less deep and the rhythm is altered so will the patients require less and less anæsthetic to maintain them in a state of workable anæsthesia. Thus if one judges that the respiration is, say, of half the normal force half the normal dose of anæsthetic must be given, and so on. I have notes of several cases in which the thoracic movements were extremely slight owing to pathological pressure on the spinal cord high up.

CASE 5.—In this case it was found that even the most dilute vapour of chloroform produced such alarming respiratory symptoms that eventually I was obliged to desist. I tried several times giving a breath or two of the anæsthetic, working with an extremely low percentage vapour of chloroform, but on each occasion the same procession of events occurred and the respiration stopped. There was in this case a high lesion of the spinal cord, and no thoracic movements were made as the intercostal muscles were paralysed, and the diaphragm being also unable to act the breathing, such as it was, was maintained solely by abdominal movements. As soon as the chloroform began to act even these movements were checked with the above result. I tried in this case a method which I have subsequently always adopted. Oxygen is given freely coincidently with chloroform, and the chloroform vapour or the oxygen is pushed according to the requirements of the case.

CASE 6.—In a case similar to the last a man, about 30 years of age, suffering from a growth pressing upon the cord with almost complete respiratory paralysis, was seen by me in consultation to determine whether in his case an anæsthetic could be given without seriously endangering his life. I decided that it could, and accordingly I gave him oxygen with chloroform with the best result. I administered oxygen continuously and exhibited chloroform from my modified form of Junker's inhaler.

In operations on the thorax the obstruction to respiration is of another kind than those mentioned above. In these cases it often happens that there is "one lung" respiration, a condition which renders the patient more liable to danger from obstructive causes, either pre-existing or developed during operation. When the lung or lungs contain large quantities of pus and when this is associated with severe spasmodic cough the most alarming dyspnœa will often develop as soon as the patient becomes anæsthetic. The cause of this dyspnœa is probably the accumulation of thick muco-pus in the larger bronchial tubes which instead of being expectorated is aspirated back into the pulmonary alveoli. It is essential in all cases of thoracic operations when the abscess or source of the pus communicates with a bronchus that the patient should be anæsthetised to the second degree of narcosis only. This ensures analgesia without establishing abeyance of the protective reflex of coughing. A deeper narcosis is fraught with the gravest danger. The dyspnœa in these cases is further due to irritation of the over-sensitive mucous membrane of the air passages and this makes it extremely important that a judicious choice of the anæsthetic should be made. In cases of empyema, bronchiectasis, and pulmonary abscess with free expectoration I have found that even the purest ether given with the utmost care will provoke much cough and distressing dyspnœa. Chloroform usually is well tolerated if it is given with extreme dilution and slowly. The irritation and danger of giving ether in some lung cases are evidenced in the following case.

CASE 7.—A boy, aged about 10 years, suffering from empyema and copious expectoration, was given ether by the rectum by me. He went under quietly, but as soon as the absorption from the bowel became rapid he grew very dyspnœic and cyanosed. He was at once inverted, the anæsthetic was stopped, and the sound lung was compressed. A considerable quantity of pus escaped from his mouth and the danger was passed.

The case just given occurred some years ago when I had not realised the necessity in using rectal etherisation in thoracic cases to limit the narcosis far short of surgical anæsthesia. The main danger of these cases after that just described is undoubtedly connected with the change of position of the patient resorted to by the surgeon to enable him to complete his manipulations. It must always be remembered that during consciousness the patient's experience prompts him to adopt the position of maximum ease of respiration and this posture should as far as possible be maintained throughout the anæsthesia. If the body is suddenly turned towards the side of the healthy lung there is danger that the pus accumulated in the diseased lung during the anæsthesia will flow across and seriously interfere with respiration. Even when this does not take place I have repeatedly seen faintness and threatened syncope occur when the patient is rolled over towards the sound side. These dangers are increased where there is any extreme degree of cardiac displacement.

The violent cough and suffocative state which in my experience nearly always accompany any extensive opening into the pleura constitute a further danger and one which may prove fatal if the anæsthesia has been allowed to become at all profound. While speaking of perils occurring during anæsthetising in thoracic operations I would mention the danger in these cases of performing Silvester's method of artificial respiration should breathing fail. In a number of instances published in the journals in which this restorative measure was recorded as having been adopted a fatal conclusion to the case occurred. A moment's consideration will show that the effect of this method must be to pump the pus and mucus into the trachea and the mouth and then to aspirate it back again into both lungs alike, leading to the effectual crippling of the sound lung. It is safe to compress antero-posteriorly the sound lung, but it is safer to perform forced respiration of oxygen by a pair of bellows or Fell's apparatus.

In summing up the teaching which the cases cited afford I think that the following propositions are worth tabulation. 1. The individual patient possesses a certain respiratory power. Individuals differ enormously in this respect, and it is the business of the anæsthetist to make himself acquainted with what I may perhaps be permitted to term the "personal respiratory equation of the patient." 2. This individual power of respiration is interfered with by every form of anæsthetic, more by some than by others, but under any anæsthetic the power of inspiration and expiration is lessened and in some cases to a very marked degree. 3. This lessened respiratory power may be of little or no consequence under normal conditions, but it becomes a factor of grave danger should any intercurrent cause of respiratory obstruction occur. For example, a delicate child breathing with difficulty through a blocked naso-pharynx is placed profoundly under chloroform. The mouth is opened and the jaw is depressed while the tongue is forced back. The respiratory power would under these circumstances be wholly inadequate to overcome the increased difficulties of respiration. The child would die and the death would be put down to heart failure, and the same occurs in cases of goitre, of malposition of the patient's body, of thoracic operation, &c. Thus it appears that all the cases cited fall into line and reveal to us not only the evident, but also the insidious, dangers associated with them. The object which I had in view in bringing this group of cases before you was to point out these dangers and to suggest the remedies and precautions appropriate to them.

Mortimer-street, W.

BILATERAL DISLOCATION OF THE HIP, PRESUMABLY CONGENITAL.

BY THOMAS PHILIP COWEN, M.D., B.S. LOND.,
ASSISTANT MEDICAL OFFICER TO THE COUNTY ASYLUM, PRESTWICH, MANCHESTER.

THE patient, a man, aged 30 years, suffering from mania with incoherence, was found on admission to the Lancashire County Asylum, Prestwich, to have an old dorsal dislocation of both hip-joints. His friends said that they were positive that the deformity was caused by injury at about the age of seven years and they asserted that there was not the slightest deformity, limp, or difficulty in walking before this. The injury referred to was a most severe thrashing inflicted by a drunken man over the back and hips accompanied with other violence. There was a marked deformity of both hips, but especially of the right. The figures (from photographs) show the condition well. The

head of the femur on each side was displaced upwards on to the dorsum and was fixed on the dorsum ilii by apparently a newly formed capsule in a position above and behind the acetabulum. When the patient stood easily there were some flexion and slight internal rotation of the thighs on the pelvis. There was considerable shortening of both thighs especially marked on the right side. An extreme degree of lordosis was apparent when an attempt to extend fully the legs was made. The apparent width of the hips was great so as to simulate a pelvis of the female type. The trochanters were displaced upwards and forwards so as to be nearer to the anterior superior spines than normally. The top of the great trochanter on the left side was two inches above Nélaton's line. The top of the right great trochanter was fully three and a quarter inches above Nélaton's line (Fig. 2). There was a slight downward tilting of the pelvis on the right side. Although there was some interference with the mobility of the thighs in all directions yet within a slight range of amplitude all movements were remarkably free, eversion and rotation out being especially so. Extension of the legs by forcible traction caused no alteration of the position of the trochanters so that the heads of the femora must have been fixed by newly formed ligamentous bands in their new positions. The patient could walk easily for fairly long distances even for several miles without great fatigue; he could run at a very good pace and could jump to a height of 18 inches with great facility. Progression was accompanied by a marked rolling waddling gait. He presented no other congenital deformities nor was there any history of similar affections in the other members of his family.

FIG. 1.

Congenital dislocation of the hip.

FIG. 2.

Congenital dislocation of the hip showing position of trochanter as regards Nélaton's line.

The illustrations show the condition very well. Nélaton's line was carefully marked in ink on the skin and also the line showing the position of the top of the great trochanter before the photograph was taken. There were no scars of injury or disease about the hips. Whether the deformity was due to a congenital malposition or to a traumatic dislocation is doubtful, but I am inclined to consider the case one of congenital dislocation of the hip in spite of the positive statements of the friends as to the history of causative injury. I think that the rolling shambling gait was probably thought little of until the immediate results of the injury drew special attention to it and the parts concerned. Yet, on the other hand, it is just possible that the cause may be a traumatic one as insisted upon, and it is rather on this account that I have ventured to regard the case as one of sufficient interest to be recorded.

Manchester.

THREE CASES OF PUERPERAL ECLAMPSIA.

BY FREDERICK SPURR, L.S.A. LOND.,
HONORARY DISTRICT SURGEON TO THE ROYAL MATERNITY CHARITY.

PUERPERAL eclampsia is described by Playfair as "one of the most formidable diseases with which the obstetrician has to cope," and he adds: "The attack is often so sudden and unexpected, so terrible in its nature, and attended with such serious danger both to the mother and the child, that the disease has attracted much attention." Those practitioners who have been called upon to treat this disease—fortunately a rare complication of pregnancy and parturition—will quite agree as to its formidable nature. The repeated attacks of convulsions are most distressing to witness and the patient's condition rapidly becomes so serious as to cause the gravest anxiety on the part of her medical attendant and friends.

The three cases now recorded occurred in my own practice in the course of a single year, and it may be noted as one of those coincidences so frequently occurring in medical work that they should follow one another at such short intervals, especially as in my previous midwifery practice, extending to some hundreds of cases, I had only met with one case previously and that nearly 10 years ago.

CASE 1.—On July 12th, 1898, I was called to a woman, 19 years of age, who had been attended by a midwife and had been delivered of a full-time female child at about 6.30 A.M. Upon my arrival I found the patient, a slightly built, dark-complexioned, and anæmic-looking woman, suffering from well-marked eclamptic convulsions. From her friends I learnt that it was her first confinement. Her previous health had been good, she had never suffered from fits of any kind, and she had kept about and at work uncomplainingly up to the commencement of labour, which had been easy and rapid. The midwife told me that during the labour she had noticed the patient's hands and face twitching and that she had at times appeared to be in a half-dazed condition. The first

actual fit came on at about 7.30 A.M., an hour after the completion of labour, and she had had seven or eight attacks before I saw her. On examination I found her in a condition of deep coma. The temperature was 101·5° F. and the pulse was 140. The pupils were widely dilated and equal, and they reacted but slightly to light. The urine on subsequent examination was found to contain a large quantity—about one-third—of albumin. The convulsions were typical eclamptic seizures and were recurring with alarming frequency. The clonic stage was protracted and the movements were general and violent, though invariably commencing in the left hand and arm. There was marked opisthotonos. The intervals between the attacks were of short duration, and in the words of her friends, "she only came out of one fit to go into another." Even during the moments of immunity there were spasmodic movements of the limbs, twitchings of the mouth, and rolling of the eyes. I gave the patient a five-grain dose of calomel, followed by a draught containing 40 grains each of chloral hydrate and bromide of sodium with digitalis. This had a marked beneficial effect, as the patient became much quieter, and from 9 A.M. (when the draught was given) till 11 A.M. she had only four fits. At 11 A.M. I gave a hypodermic injection of one-fifth of a grain of pilocarpine nitrate. On visiting the patient again at 12.15 P.M. I was informed that the convulsions had again become more frequent and of longer duration. There had been five attacks in less than an hour, each one lasting four or five minutes, and as the patient had three severe attacks in quick succession shortly after my arrival I decided to give chloroform immediately. At first the attacks appeared to be rather excited than otherwise, and I found it necessary to "push" the administration of the drug almost to the full surgical extent in order to obtain any effective control of the paroxysms. For over an hour I kept the patient deeply under the anæsthetic, as I found that there was almost immediate recurrence of the convulsions on diminishing the strength of the vapour. Very gradually, however, after the first hour I was able to decrease the dose of chloroform and finally found it sufficient to give it intermittently, merely increasing the strength on any indication of commencing convulsions. The intervals of immunity became longer and longer and I discontinued the anæsthetic altogether three and a half hours after commencing its administration and when, with the smallest effective amount of chloroform, the patient had been half an hour without any signs of convulsive movements. After discontinuing the chloroform I remained for about an hour and a half by the bedside and noticed that as the effect of the anæsthetic passed off there was a return of the muscular twitchings, but they did not develop into an actual fit until just before I left, when there were three or four attacks of convulsions in quick succession, limited, however, to the left half of the body. I prescribed a mixture containing in each dose 20 grains each of chloral hydrate and bromide of sodium to be given every four hours so long as there was any continuance of the convulsions. The patient had the first dose about 6.30 P.M., and from this time till 9.30 P.M., when I saw her again, she had three fits. I gave her a second dose of the medicine before leaving and at midnight the nurse wrote to me a note to say that there had been no return of the convulsions and that the patient appeared to be sleeping quietly. During the early morning of the 13th there was some recurrence of the eclampsia, but as there were considerable intervals between the attacks, which were moreover of short duration, the nurse did not repeat the chloral draught. The patient remained unconscious during the whole day. She passed fæces and urine involuntarily seven or eight times. The pulse varied from 108 to 120, and the temperature, taken every four hours, fluctuated between 101° and 101·8° which was the highest point reached. There was no return of the convulsions and there were no muscular twitchings. On the 14th I found that the patient had had a good night, but she remained in the same unconscious condition as on the day before. The bowels were still loose and several involuntary motions were passed. The temperature during the day remained about 100°, the highest point reached being 100·4°. In the early evening the patient opened her eyes several times and looked about her, but did not take any notice when spoken to until near midnight when she gave several monosyllabic replies to questions. On the 15th the patient was able to converse freely. She remembered nothing of her confinement or subsequent illness, but complained of feeling stiff and sore all over "as if she had been beaten." The temperature and pulse were normal. The urine still contained a trace of albumin. From this time she made an uninterrupted recovery, but she had no memory for any events later than noon of the 11th, the day previous to her confinement, and she could recollect nothing of her labour or of the birth of her child, so that she was practically in a state of unconsciousness for three and a half days, during which time she gave birth to her child and had from 45 to 50 attacks of eclamptic convulsions with no subsequent recollection of pain or suffering.

CASE 2.—I was called to this case on Feb. 9th, 1899, at about 5 P.M., but owing to a mistake in the address which was sent to me there was some delay in my seeing the patient who had been attended by a midwife and had been delivered of a full-time child at about 4 P.M. On my arrival, at about 6 o'clock, I found the patient, a robust-looking, muscular primipara, 22 years of age, suffering from severe eclampsia, the fits occurring with such frequency as to seem almost continuous. Her temperature rose to 102·4° F. and the pulse was 130. The urine was normal in every respect and repeated examinations subsequently failed to show the presence of even the least trace of albumin. The midwife told me that the patient had a "slight fit" about a quarter of an hour before the birth of the child, but she noticed nothing else abnormal until about an hour after the completion of labour, when the fits came on in alarming frequency and severity and I was sent for immediately. The friends informed me that the woman had always been healthy and had never suffered previously from convulsions or fits of any kind. I gave her a two-minim dose of croton oil, followed by a draught of chloral hydrate and bromide of sodium (40 grains each) as in the previous case and saw her again at 7.30 P.M., when I found that the bowels had acted freely several times, but the convulsions were not diminishing either in frequency or severity. Under these circumstances I decided to resort again to the administration of chloroform which had been of such material service in my previous case. The attacks were more rapidly controlled by the anæsthetic in this case than in Case 1, but I again found that at first they appeared to be aggravated, and that it was necessary to "push" the drug in order to obtain efficient control of the paroxysms. In the present case I was able to discontinue the chloroform after a little over an hour and a half—i.e., at about 9.30 P.M. Between 9.30 P.M. and midnight the patient had several fits, but they were not so severe or so prolonged as before giving the chloroform. I prescribed 15 grains each of chloral and bromide, to be given every three hours, if there was a recurrence of the convulsions. During the following day the patient remained unconscious. The temperature was never higher than 100·8°, and her pulse remained at 120. On the 11th I found her able to converse freely, but she remembered nothing of her illness or of the actual birth of the child, though she had a clear recollection of the earlier stages of the labour. She made an uninterrupted recovery except for a slight attack of bronchitis which came on towards the end of the week.

CASE 3.—This case was much less severe than either of the two cases above described—a circumstance which I attribute in great measure to the fact that the presence of albumin in the urine was detected and the morbid condition treated for some weeks before the actual confinement took place. The patient, a primipara, aged 23 years, came to me on April 1st, 1899, being then eight months pregnant, complaining of severe headaches, giddiness, and swelling of the feet and legs. She was suffering from great œdema of the legs and there was marked puffiness of the face. On examining the urine I found it loaded with albumin to the extent of nearly one half, and it also contained epithelial cells and tube casts. The patient had noticed the swelling of the feet and legs for quite a month before coming to me, but she did not seek advice until she was almost unable to walk and until the headache and other symptoms became severe. I strongly urged the advisability of inducing premature labour, but as neither the patient nor her husband would consent to this I was obliged to rely upon medicinal and dietetic treatment. I prescribed a mixture containing tincture of perchloride of iron, tincture of digitalis, and tincture of jaborandi, to be taken three times a day, and also 40 grains of compound powder of jalap to be taken every night for a week and after that every other night. At the same time I restricted her diet chiefly to milk and white fish. Under this treatment there was a

slight improvement. The albumin diminished in quantity, the headaches and giddiness were less severe, but the œdema increased until it extended to the vulva and the loins. On the 28th I advised copious daily enemata of soap-and-water and discontinued the jalap. Labour commenced on May 1st and the first stage lasted about 24 hours, the vertex presenting. About noon on the 2nd I ruptured the membranes and the head quickly descended on to the perineum, when the patient complained of great giddiness and shortly afterwards without any further warning became convulsed, the fit lasting several minutes. The child was born almost immediately afterwards and the placenta was expressed without difficulty. I gave her a draught containing liquid extract of ergot with 20 grains each of chloral hydrate and bromide of potassium. Half an hour after the birth of the child she had another attack of convulsions lasting for four or five minutes and followed by a short period of semi-consciousness and great exhaustion, the pulse going up to 140. When I left the house an hour later she had quite recovered consciousness and speech and had had no return of the convulsions, from which she did not subsequently suffer. A week afterwards the urine still contained a trace of albumin (about one-twelfth), and by the end of a fortnight it was normal. The œdema gradually disappeared concurrently with the disappearance of the albumin and the patient made an uneventful recovery, though she remained anæmic for some weeks.

With the exception of rupture of the uterus and concealed accidental hæmorrhage there is probably no more fatal complication met with in the practice of midwifery than eclampsia. Its serious nature, as well as its comparative rarity and its obscure pathology, have combined to invest this disease with such interest and importance that every case seems worthy of record. Many theories have been advanced from time to time as to the cause of the convulsions, but the etiology of the disease is still much disputed. There is general agreement amongst pathologists and obstetricians that it is due to a toxæmia, but while according to some authorities the origin of the toxin is to be found in some pathological condition of the placenta or the fœtus giving rise to bio-chemical changes, others deny the influence of either placental or fœtal conditions and maintain that it always arises from some morbid maternal state. Probably the most generally accepted view is that the disease "is due to a toxæmia of a urinary nature, toxic substances being retained in the blood which should have been excreted by the kidneys,"[1] and the frequent association of albuminuria with eclampsia certainly supports this theory. It has been stated[2] that one pregnant woman in 40 is albuminuric, and that of these one out of every four develops eclampsia; that eclampsia without albuminuria is of rare occurrence—one case in 10 cases. From these facts the practical conclusion is drawn that albuminuria should always be looked for in pregnant women, and actively treated during pregnancy when detected.

As regards treatment there can be no doubt that the chief indication is to eliminate the toxic matter from the circulation, or, failing this, to dilute it as much as possible. With this object in view purgatives, diuretics, and diaphoretics are given, and Dr. R. Jardine has recently strongly advocated the use of saline injections. In the two first cases above recorded I relied on calomel and croton oil respectively as purgatives, in each instance with very satisfactory results; but in any future case I should feel more inclined to resort to the more rapid and certain method of emptying the lower bowel with copious and repeated enemata. The second indication must be to counteract or modify the effects of the poison in the system, and for this purpose numerous drugs have been recommended—morphia, chloral hydrate, bromides, chloroform, veratrum viride, &c. After the experience gained in the three cases now described I should never hesitate to place entire reliance on the mixture of chloral hydrate and bromide, supplemented if need be by the prolonged administration of chloroform; but in a disease of such gravity, arising from a toxin, whatever its nature, of such virulence, it is absolutely necessary to give these counteracting drugs in full doses, and above all to persevere in the line of treatment adopted and that even in cases apparently hopeless.

Commercial road East, E.

[1] Dr. R. Jardine: THE LANCET, July 1st, 1899, p. 28.
[2] Charles: Journal d'Accouchements, April 3rd, 1898.

A FEW CASES OF BRAIN INJURY CLINICALLY EXAMINED.

BY EDMUND E. DYER, M.B.EDIN.,
SURGEON TO CLACKMANNAN COUNTY HOSPITAL.

As the clinical study of head affections and injuries, when verified by post-mortem examination, is always interesting, the following cases may be of more than ordinary interest, more particularly as each of the following cases shows the enormous amount of brain tissue which may be destroyed without causing at least immediate death.

CASE 1.—The first case was that of a man, aged 20 years, who was admitted into the Clackmannan County Hospital suffering from a compound fracture of the skull which he sustained by being knocked down by the revolving handle of a steam winch. On admission his breathing was laboured and stertorous, there was considerable muscular twitching, and just after the accident he had had several violent convulsions. There was considerable hæmorrhage from the wound, which was about three inches above the left ear. He was insensible except to strong stimuli. There was a considerable scalp wound, with extreme shattering of bone which was also much depressed. I decided to trephine at once and having had the patient put under chloroform I removed entirely a triangular piece of bone measuring two inches by one and three-quarter inches by one and a quarter inches, and also two other pieces of small bone which had been crushed down from the inner table. The dura mater was to the naked eye apparently uninjured. As there was still a great deal of depression I inserted my finger between the dura mater and the frontal bone and lifted up the whole, when it went back into place with a snap. Immediately afterwards the breathing became regular and quite natural. The external wound, which was originally two and three-quarter inches in length, running upwards and backwards, and which was extended for operation to five inches, was closed, and a drainage tube was put in, which was taken out on the third day, the wound having practically healed without suppuration. The patient gradually recovered consciousness and on about the fifth day he was able to ask for anything. Curiously enough, from the day after the injury he insisted on getting out of bed for the purpose of passing urine, and this in spite of all attempts to prevent him. On the ninth day a reddish swelling and general puffiness developed over the nose and forehead which at first looked almost erysipelatous in character, and on the next day the temperature rose to 102 4° F. This, however, went down on the fourteenth day, when he gradually improved and spoke a little, and could answer questions if time was given to him, although cerebration was very slow. The improvement continued and on the seventeenth day he sat up in bed and ate a small piece of meat and complained that it was not enough. On the twenty-first day a swelling similar to that which developed on the forehead came on the posterior occipital parietal region. On the twenty-fourth day the patient developed extreme photophobia. He lay on his left side and curled himself up. He became comatose on the twenty-sixth day and died two days after, or 28 days after the injury. As the case fell under the scope of the Fatal Accidents Inquiry Act (Scotland), 1895, I made a post-mortem examination with a brother practitioner and we found the following conditions. The external wound was quite healed and the dura mater had thickened slightly at the point of injury. On reflecting the scalp the fracture was found to extend down to the left ear, right down to the left orbital plate, then right across the head posterior to the fronto-parietal suture to near the right ear. On lifting the skull-cap the dura mater was found to be adherent to it at the seat of injury. Below the dura mater the brain was found to be more or less covered with pus and immediately below the seat of injury was an abscess. The brain was removed and on making sections the abscess was found to extend from the point of injury, which was on the middle frontal convolution backwards and inwards, to the lateral ventricle. In the right cerebral hemisphere another abscess was found just below the surface of the brain at the angular convolution extending to a point close to the lateral ventricle

on that side. Pus was also found over the base of the brain and around the spinal cord.

In reviewing this case I can only suppose that the œdema over the frontal region was due to the abscess on the left side and that it went down with the contemporaneous fall of temperature when the tension was relieved by the pus bursting into the lateral ventricle. The second abscess did not find such exit. The other points to consider clinically in the case are the absence of paralysis, the extraordinary destruction of brain tissue, the extreme photophobia, and, finally, the length of time under the circumstances that the patient lived after the injury.

CASE 2.—The patient was an old soldier, aged 56 years, whom I admitted into the hospital suffering from right hemiplegia. The man had been ill for several days before his admission. No very definite history could be got. He was able to speak a few words, but cerebration was very slow, and on the left eye there were signs of an old keratitis. On the eighth day after his admission he became worse generally and he suddenly developed most violent convulsions which lasted for several hours, but which gradually subsided after treatment with heroic doses of chloral and morphia. From this date the convulsions never recurred, but there were slight twitchings from time to time. The patient died on the twenty-fourth day after his admission into the hospital and about the thirtieth day after the first seizure. Death occurred in the way so common with many of these cases except that the man took his nourishment well up to the day of his death. The temperature never rose above 99·8°F. There was no affection of the breathing.

The interest of this case lies chiefly in the post-mortem examination which, happily, I was able to make. On opening the head the dura mater was found to be adherent to the bone in patches all over the calvarium and was detached only with great difficulty in some places. The veins of the dura mater were enormously dilated. The whole brain tissue was extremely soft. On making sections of the brain horizontally the first thing which was discovered was a large round clot flattened from above downwards, measuring one and three-quarter inches in diameter, placed high up just inside the fissure of Rolando. On making further sections a well-organised smaller clot was found a little lower down just inside the middle frontal convolution, and again at a lower level a clot, of much the same size and character as the last, situate in the occipital region. These three clots were all found on the left side of the brain, but on making similar sections on the right side three other clots were found in almost exactly corresponding positions. The only difference was that the oldest clot of all—viz., the one in the frontal region—was here and the most recent clot of all was on this side in the occipital region. The last clot found was on the left side of the cerebellum and was three-quarters of an inch in diameter.

Diagram representing the relative position of clots in the brain in Case 2. Six clots are shown. The seventh clot was in the body of the cerebellum. The clots were not upon the same level, although diagrammatically they are so represented.

Now, which clot or clots, if any, caused the convulsions? From the date of the first symptoms and comparing the oldest clot with the more recent ones and considering the time which elapsed between the convulsions and the date of death I am inclined on these grounds alone to think it was the clot in the cerebellum. Although the age of the clot below the fissure of Rolando was much the same as that in the cerebellum, yet, on the other hand, the age of the corresponding clot below the fissure on the other side was distinctly different, and had this been the cause then it is reasonable to infer that instead of one set of general convulsions there would have been another at a later period, and this was not the case. The chief point of interest about this case is the number of separate hæmorrhages, no less than seven, each one being of a different age, and as far as affected the cerebrum almost exactly symmetrical; further, that so far as could be seen only one of these hæmorrhages caused the convulsions. The internal capsule was not affected and in no case apparently did the clot affect the grey matter of the brain. The man was an alcoholic and from the signs which were found I have little doubt that he had suffered from syphilis. In this case also there was no affection of the breathing.

CASE 3.—The third case is perhaps as interesting as the foregoing in showing an extensive destruction of brain tissue without a fatal ending. A lad was admitted into the hospital suffering from an injury to his head. It had been crushed from side to side between a fixed upright beam and the arm of a machine working horizontally, the point of which was as nearly as possible three-quarters of an inch square. On admission he was bleeding freely from a small cut over the right temple and a quarter of an inch behind the temporal artery. The injury to the bone was slightly to one side of the cut and to the front. I introduced a probe very gently and found a small fracture at the point indicated and with so much destruction of brain-tissue that the probe by its own weight entered exactly two and a half inches straight into the brain. Considering the condition of the patient and the absence of any urgent symptoms I did not think it a case for operation. The bleeding was stopped, an antiseptic pad put on, and the boy was sent to bed. The external wound, which was not sewn, healed without trouble and the patient was discharged in about three weeks. The boy after receiving the injury walked about 200 yards from the works to a medical man. But for a little faintness and pain for a few days the patient suffered no inconvenience. There was no rise of temperature or bad symptom.

Each of these cases shows the enormous amount of brain-tissue which may be destroyed and, further, the extraordinary efforts the brain is capable of exerting to repair the damage, both effort and power being quite beyond what is often supposed it is capable of exerting.

Alloa, N.B.

SURGICAL ASPECTS OF CONSTIPATION.

BY S. L. WOOLMER, M.R.C.S. ENG.

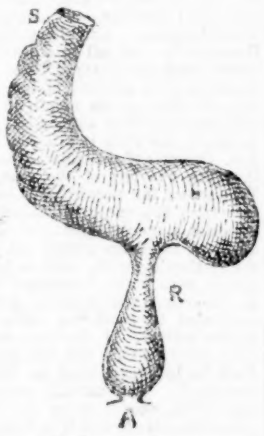
THE following two cases are recorded in order to demonstrate what is believed to be a rare sequel to the most common morbid condition known to exist. I can find in no works on modern surgery any reference to a case of "aneurysmal" dilatation of the colon as the result of chronic constipation, and yet that it must exist in no small degree is very obvious. Due to this dilatation and the consequent accumulation of fæcal matter therein the condition of both patients was reduced to one of great gravity, as witnessed by the repeated attacks of intestinal obstruction, the degree of anæmia produced by insufficient alimentation, and stercorræmia. No enema could have possibly cleared the intestine nor could any procedure short of operation have relieved the patients.

CASE 1.—A man, aged 28 years, was under the care of Dr. Masi in the Military Hospital of Buenos Ayres. He had been constipated for four years. On Dec. 23rd, 1892, during a long march, and after a meal which consisted principally of cheese, he could obtain no movement of his bowels, and in this state he continued till March 12th, 1893, having only been able to expel by the rectum gases and a little blood. He then entered the Hospital San Roque in Buenos Ayres, where he was eventually relieved. From this period till November, 1896, he continued always constipated, relieving himself only by enemas and purges, and then with great difficulty. In November, 1896, he entered the military hospital under the care of Dr. Masi, where he recovered somewhat his functions by the application of abdominal massage and enemas of half a litre of olive oil administered daily. The presence now of blood in the motions and their ribbon-like character persuaded Dr. Masi that he had to deal with a malignant disease of the colon and he considered, therefore, the advisability of performing laparotomy.

Examination by the rectum revealed a very indistinct sensation of fulness behind the bladder, and by abdominal palpation nothing abnormal could be discovered. Laparotomy was performed on Feb. 2nd, 1897. The large intestine was found to be healthy from the cæcum to the sigmoid flexure, but on introducing the hand into the pelvis and behind the bladder a coil of intestine was felt dilated to the extent and form of a stomach. The bottom of this dilatation was occupied by soft fæcal matter. On lifting that part of the sigmoid flexure out of the abdomen which was adjacent to the tumour the latter was seen to accompany it, and on elevating its base it became immediately emptied, its contents falling into the rectum. The tumour was then easily brought out of the abdomen and was found to be the last part of the sigmoid flexure enormously dilated. Its surface presented striæ very like to those of the abdomen of a multiparous woman, and proof that it had been still even more dilated than at the time of the operation. On further examination it was found that movement of the bowels could only be produced when this cyst was completely full, and then only by regurgitation, as will be easily understood from the accompanying diagram (Fig. 1).

FIG. 1.

FIG. 2.



S. Sigmoid flexure. R, Rectum. A Anus.

An examination of this diagram will also explain the small calibre of the motions. The weight of the cyst full of fæcal matter must have produced such traction upon the sigmoid flexure that the orifice of communication with the rectum must have been obstructed almost completely and could only allow the passage of small flattened particles. The veins of the meso-sigmoid were immensely dilated, indicating the difficulty of the circulation and perfectly explaining the hæmorrhages which occurred before operation. The cyst once emptied was sutured to the abdominal wall in an elevated position by seven sutures with No. 0 silk, and the abdomen was closed. A dose of castor oil administered 36 hours after the operation relieved the patient of some tympanites and colic, and subsequently the bowels were moved once or twice a day abundantly, the motions being of normal calibre. On July 31st, 1897, the patient had no constipation.

CASE 2.—A man, 42 years of age, was admitted under my care to the sanatorium of Buenos Ayres on July 15th, 1897. He had suffered from constipation for some eight or 10 years, having become worse during the last 12 months. During this latter period his only food consisted of thin soup and light cocoa, due to a not unnatural desire to diminish as far as he was able the quantity of fæcal matter. In March, 1897, he had an attack of acute intestinal obstruction, but without vomiting; his tongue was dry and was covered with a brown fur and his countenance was anxious. On abdominal palpation a tumour was found in the hypogastrium, at the level of the insertion of the right rectus muscle; it was globular, smooth, and painless, and presented considerable resistance. By the rectum a tumour was also felt descending from above and reaching to the middle portion thereof, and by bi-palpation it was found to be identical with that felt through the abdomen. The finger could with firm and continued pressure be indented in the tumour, the indentation persisting afterwards. The tumour could not be dislocated from the pelvis.

Treatment by large enemas was adopted, the patient placing himself in the genu-pectoral position. Cascara sagrada was administered and periodically Hunyadi Janos water, and later an enema of olive oil was employed, with the effect only of enabling the patient to live in comfort, acute symptoms recurring if these measures were not adopted. But as a result of this treatment the tumour seemed to acquire greater mobility, at times abandoning completely the pelvis, as proved by rectal examination, and appearing high up in the hypogastrium and with marked and evident relief to the symptoms. Still the patient never had a comfortable movement of the bowels and never voided any fæcal matter, only what he termed "washings." Every week he had symptoms of acute obstruction and the diagnosis of pedunculated stercoraceous tumour of the sigmoid flexure appearing certain he was admitted to the sanatorium for operation, which was performed on July 19th.

On opening the abdomen the sigmoid flexure at once presented itself in the wound, enormously dilated, having lost completely its sacculated character. The small intestine was seen only once, and it appeared somewhat atrophied. On passing the hand into the pelvis it was found to be totally occupied by a large tumour which completely impeded the passage of the hand. The tumour was eventually lifted out of the pelvis by traction on the dilated colon, and it could then be "eased" out of its position. It was found to be a large "sessile" dilatation of the last portion of the sigmoid flexure (Fig. 2). Its peritoneal covering was quite normal, but it seemed to be somewhat thickened. No adhesions existed. The consistence of the tumour was solid, but by dint of force it could be indented by the finger. An effort was then made to reduce its contents into the rectum, but although moderate pressure was employed it was found impossible. One of two procedures was then left open—either to suture the elevated intestine to the abdominal wall or to incise it, liberate its contents, and return it again to the abdominal cavity. The former course was decided upon for the following reasons. The tendency of the tumour, due to its weight, was always to fall into the pelvic cavity, and I decided to marsupialise the tumour in the abdominal wound in the hope that the contained mass would tend to free itself gradually by reason of its own weight. In case this did not happen after adhesions had formed circumscribing the piece of gut left exposed in the wound it could always be incised later and the resulting fistula could be subsequently treated. Accordingly it was united to the central part of the abdominal incision by an uninterrupted suture, there remaining at the base of the wound a piece of the tumour of the size of a florin. The rest of the wound was then sutured in three places.

Recovery was uninterrupted after the operation and the patient expressed himself as being much relieved from the first. The bowels still only acted with enemas which brought away débris. On the eighth day it was noticed by rectal examination that the fæcal mass had fallen so as to be nearly within reach of the finger, and with a little trouble and by the aid of copious enemas and a long scoop it was completely removed. Its volume would be approximately three-quarters of a litre and it had lost entirely its fæcal odour. Up to August 10th the patient still only defecated by the aid of an enema, the motions being ill-formed but of distinct recent formation, and he could pass flatus with all facility. The tongue had completely cleaned by August 1st. The abdominal wound was therefore closed on the 3rd, local anæsthesia being produced by Schleich's infiltration process. During the following night the patient was much troubled by retention of flatus, which was relieved by the passage of a long tube up to the sigmoid flexure, and more completely later by the administration of an ounce of castor oil. On the 10th the wound had practically healed, and on this date the first natural and spontaneous movement of the bowels was produced. On the 31st the patient was discharged cured, having gained enormously in weight.

As I have before mentioned, although constipation is one of the commonest morbid conditions known, yet I can find no reference made by any author to the formation of a tumour such as that met with in the foregoing cases. Cahier in his monograph on Acute Intestinal Obstruction makes no mention of this condition, but Treves in his work on Intestinal Obstruction refers to tumours formed by the mass of

retained fæces, and observes that when they occur in the descending colon or sigmoid flexure they are divided into scybala, thus showing that in his vast experience he had probably never met with a case similar to those here recorded. He later mentions a very important sign in the differential diagnosis of these tumours—that is, that they are affected by pressure, yielding to the finger the sensation of a mass of dough or putty. In Case 2 this sign placed the diagnosis beyond a doubt, but it was inapplicable to Case 1 because no tumour could in this instance be felt.

It is noteworthy that in both cases the site of the tumour was the same—in the last portion of the sigmoid flexure, in a position where the external agency of the abdominal muscles is of little avail in the act of defecation. The impaction of fæcal masses in this region tends to produce dilatation behind it, and this distension may be localised or general. General dilatations are relatively common.

While the condition of the first case could only be accurately diagnosed at the time of the operation the great mobility of the tumour which subsequently developed itself in the second case gave rise to the belief that in this instance also would a "pedunculated" tumour be met with, for on various occasions it could be demonstrated bimanually that the lesser cavity of the pelvis was absolutely free, the tumour itself being felt well above the pelvis.

The second case illustrates also the inadvisability of the employment of Schleich's infiltration anæsthesia in any case where it is of prime importance that the eliminative functions of the bowels should be in a state of activity. The meteorism produced by the morphine in the injection caused great distress to the patient until it was relieved by the enemas and I shall certainly never employ it again in any laparotomy, where as a rule the master-key to success in after-treatment is so often found in a thorough movement and disinfection of the bowels.

My best thanks are due to Dr. Masi of Buenos Ayres for permission to report his case and for much valuable advice. At the present date (Nov. 10th, 1897) both patients are enjoying good health and are free from constipation.

Buenos Ayres.

FRACTURES OF THE INFERIOR MAXILLÆ TREATED BY A MODIFIED METHOD OF WIRE SUTURE AIDED BY THE ELECTRO-MOTOR.[1]

BY T. S. CARTER, L.D.S. R.C.S. ENG.,
HONORARY DENTAL SURGEON TO THE GENERAL INFIRMARY, LEEDS.

BEFORE describing wire-suturing it will be better for me to review briefly the whole subject of fractures of the inferior maxillæ and the treatment which has hitherto been usually adopted, in order that you may draw a comparison between what I trust I may call the old method and the new.

[Mr. Carter here referred to the frequency of fractures of the inferior maxilla and gave an account of their general features.]

Diagnosis.—The symptoms attending a fracture are, as a rule, clearly indicated. There are mobility, crepitus, and very often displacement, the teeth showing differences in level. Those adjacent to the fracture may have been loosened or knocked out and there will be pain and a good deal of salivation. Also the position of the patient is generally indicative as he will be found carefully nursing his jaw with one or both hands. If, however, there be any doubt it is well to grasp the jaw with both hands with the forefingers introduced into the mouth and crepitus between the fragments will be found and movement observable. Where the diagnosis is difficult, as in cases of fracture of the coronoid or condyloid process, it is well to push the index finger of the right hand well back into the mouth and by feeling at the same time externally with the left hand the fracture, if there be one, will be felt. A displaced fragment can often be pushed into its normal position in this way and retained by forcing the jaw upwards against the superior maxilla.

Treatment.—With reference to treatment of fractures, we may note that in early times if the patient got off with a united fracture and his life, no matter if the articulation was good, bad, or indifferent, he was thankful—a quiet thankfulness like that of the old woman who had only one tooth in each jaw and they were fortunately both on the same side. She said she had not had many blessings in this life, but she did thank God these two teeth touched each other. If in bygone days it was found that teeth by being out of position made the displacement more noticeable, the surgeon by means of forceps soon altered that state of things. The conditions which most favour a satisfactory result in these cases are as follows. The fractured ends of the bone should be firmly maintained in correct apposition after reduction of the displacement. The splint should not interfere with speech or movement of the jaw, or with a proper cleansing of the mouth. Also it is of all things important that we should be able to note throughout the treatment that the grinding surfaces of the teeth of one or both fragments oppose those of the other jaw. This should be the chief aim of the operator, as by its neglect a patient's future health may be imperilled owing to the loss of half his masticating power, and also his personal appearance may be considerably damaged.

It is not necessary for me more than to name some of the forms of splints most frequently used as they are all well described in surgical and dental works. They consist of the four-tailed bandage, and, amongst others, those called after the originators—viz., Kingsley's, Hern's, Gunning's, and Hammond's. Of all interdental splints I think, in cases where there are plenty of firm teeth standing, the latter is most useful on account of its simplicity. It has the advantage of allowing the mouth to be thoroughly cleansed and does not interfere with a full view of the fracture being obtained, nor does it interfere with free movement of the jaw. Samples of the splints I have named are before you, but they are but few of the many which have been devised. This shows the necessity for some simple universal method free from the one great objection—namely, that of having to make a special splint for each case. This is a tedious business, and when carried out you have in most cases filled the patient's mouth with a bulky mass interfering with speech, with proper cleansing of the oral cavity, have difficulty in observing the relative position of parts, and have succeeded in producing salivation and general discomfort to the patient. I therefore took up wire-suturing of the jaws, somewhat on the lines suggested by Dr. Buck of New York in 1847 and later, in 1863, by Mr. Hugh Thomas of Liverpool. The method adopted by the latter was to drill holes, one on either side of the fracture, and having passed his wire to coil it by twisting on a steel rod. I noted, however, in the record of his cases that he stated that the coils made had to be tightened every two or three days. This I take to be due to the coils rather untwisting. Instead of this method I bring the ends of the wire together and twist them and this brings and firmly binds the fractured ends of the bone equally in contact on both buccal and lingual surfaces. The twisted ends of the wire when bent flat, take up less room than the coils, which is an advantage. I notice in two of the cases recorded by Mr. Thomas and one by Mr. Rushton Parker of Liverpool that in order to get at the jaw beyond the angle of the mouth they drilled through the cheek and drew the wire into the mouth. If, however, a retractor be used, this plan is quite unnecessary.

When I first read the notes of these cases I was struck by the fact that to bore the holes by means of a gimlet or Archimedean drill was primitive. When therefore Mr. T. R. Jessop gave me my first jaw case, which was one of Syme's operation for removal of the tongue, followed by non-union at the symphysis, I determined to use the dental engine. With this object I had several long drills made with different-shaped cutting edges, and I found the bayonet shape the best. This was made to fit a dental engine and I had a thicker driving cord added and blocks of lead fixed to the fly-wheel to add to its power. Armed with this I approached the patient and drilled two holes through his jaw as readily as boring through chalk. I was pleased with the result at the time and with the success which followed in many cases afterwards. As, however, the use of the foot for treadle work is a trained movement not practised by surgeons I consulted Mr. S. W. Cuttriss, electrician, and induced him to bring out an electro-surgical motor primarily for the object of drilling any bone in the body, the removal of exostoses, and general aural work, and by degrees to develop it until it could be used for trephining and any form of bone-work. The motor is before you and is on the lines of

[1] A paper read before the British Dental Association at their annual meeting held at Leeds on June 2nd, 1900.

those made by Messrs. Cuttriss and Wallis for dental purposes, only more powerful. It may be constructed to work with either continuous or alternating current as required.

[Mr. Carter here gave an account of various points in the mechanism.]

To facilitate wire suturing I have devised a case containing in small compass all my instruments for suturing fractures, whether of maxillæ, patellæ, or long bones. It was described and illustrated in THE LANCET of August 27th, 1898, p. 558. My method of procedure in a jaw case is as follows. Having taken the necessary antiseptic precautions I take a piece of silver-plated copper wire No. 19 B. W. G. and for the distance of nearly an inch from the end file away half its thickness. To make it more ductile I then pass the wire slowly through the flame of a spirit lamp, making it a dull red for a length of about six inches. With the patient under ether I draw down the lip and with a sterilised bayonet-shaped drill in the motor bore a hole slowly through the jaw posterior to the fracture and between the fangs of the teeth. In this position the inferior dental nerve is avoided, and the opening should be made not less than a quarter of an inch from the fracture. While drilling with the right hand the spoon is held on the lingual side so as to guard the tongue from the point of the drill as it emerges from the foramen. Having withdrawn the drill the plated wire is pushed through from without and by means of forceps drawn well into the mouth. The difficulty has been in returning the silver wire, as it is not easy to find the return passage by simply probing for it. Having, however, drilled the hole on the other side of the fracture a pliable copper needle may be pushed through from without and bent at a suitable angle to allow of being readily threaded with the plated suture wire. Where the point of the wire has been filed it may be bent so as to form a hook, and if the needle is then withdrawn the wire will follow. It is well to drill the hole in the depressed portion of bone on a lower level than the other one, so that there may be a lifting tendency and greater resistance to a relapse in position. I make sure that there is no foreign body, such as a loose fang, between the broken ends of the bone and then lift the displaced portion into position, apply the key, and then twist the wires until the ends of the bone are drawn tightly together. To prevent the key from cutting the wire it is necessary not to push it nearer the bone than, say, half or three-quarters of an inch before the first turn is given. Having severed the twisted wire with side-cutters an end is left projecting about half an inch long. To prevent this from cutting the cheek I cover it with a short piece of indiarubber tubing of the calibre of a crow's quill and turn it down flat. It is well not to drill quickly, as I think the interesting little sequestrum which I will pass round will prove. I found it slung like a bead on the suture wire on the tongue side, as shown in the model of the mouth taken at the time. The hole through the centre was made by the drill and the necrosis was probably due to heat produced by the speed of the revolving engine-point; it is well, therefore, to observe caution in this respect, and also not to advance the drill too rapidly through the bone tissue.

Fractures of the ramus are uncommon, and when they do occur there is little displacement. For cases at the angle, however, where there may be some difficulty I am going to have a right-angle piece made to carry a drill of only just sufficient length to go through the thickness of the ramus and its coverings from the lingual side. In using it so far back it will be necessary to avoid the inferior dental nerve and to have the tongue drawn forward to prevent it from being pushed backwards over the glottis by the angle-piece. Where it is necessary to divide the lower maxilla, as in Syme's operation for removal of the tongue, it is advisable that the surgeon should make, not simply a vertical incision, but two oblique ones from above and below, meeting at an angle, so that the fragments may lock into each other and facilitate retention by wire suture in normal position. Until quite recently I used the dental engine for drilling purposes and I will briefly record four cases out of the many I have done. The models taken before and after treatment are before you.

CASE 1.—A powerful man, aged 19 years, was admitted to the Leeds Infirmary on May 11th, 1892, suffering from compound fracture of the lower jaw, and on May 19th I was asked to see the case. I found the lower maxilla fractured transversely across the ramus on the patient's left side, also perpendicularly between the two fangs of the first molar on the same side and likewise perpendicularly through the socket of the second bicuspid on the patient's right. The front portion was much displaced, being deeply depressed and exposing the second fang of the molar in its full length. The front portion was also considerably overlapping the posterior part, carrying the median line of the maxilla considerably over to the patient's left side. On May 20th I drilled holes through the jaw and wired in the manner described. There were no complications and on June 11th the teeth were all well opposed to each other and on July 7th I removed the suture and found all firm.[2]

[Details of two other cases were then given.]

CASE 4.—The patient was a canal boatman who during the early morning of Dec. 28th, 1896, was winding a lock windlass when his foot slipped on a piece of ice and the revolving handle struck him across the jaw, causing a double fracture of the inferior maxilla and more or less concussion of the brain. I found the jaw fractured through its body between the second bicuspid and first molar teeth on the left side, and between the first and second bicuspids on the right side. The anterior portion was much depressed, and although there was no external wound there was considerable swelling. On the 30th he was anæsthetised and I wire-sutured the parts together. On March 15th, 1897, I tightened the sutures and on May 7th I removed them. The fractured portions of the jaw were perfectly united and there was complete antagonism between the upper and lower dentures.

For suturing purposes I have always used annealed silver-plated copper wire, and that it is preferable to solid silver will be best illustrated by the following two cases and by the expert evidence which Professor John Goodman, M.I.C.E., of the Yorkshire College, has so kindly given.

I was asked to see two cases of fractured maxillæ admitted to the Leeds Infirmary on Feb. 9th and Feb. 20th last. The messages arrived, however, after I had left Leeds, and my method of wiring was adopted in both cases, the drilling being done by the electro-motor. Solid silver wire was used, however, and it broke on twisting. In the other case it broke three times during the twisting stage. Thinking it important for surgical work generally that it should be determined which kind of wire was the stronger and more ductile I brought the matter before Professor Goodman, whose tests proved as follows—that the number of twists per inch in length which annealed silver-plated copper wire would bear before fracture, was 22·8, as compared with 18 only in solid silver wire. When not annealed the difference was 13·7 as compared with 12·8. This proves that annealing greatly increases the ductility of wire. Testing the wires in pure tension it was found that the breaking load of copper as compared with silver was 47 pounds as compared with 42. The detailed results are as follows. Silver-plated copper wire: diameter, 0·041 inch; sectional area, 0·00132 square inch; breaking load, 47 pounds; breaking stress in pounds per square inch, 35,600; extension per cent. on three inches before fracture, 41·0 per cent. Silver wire: diameter, 0·040 inch; sectional area, 0·00126 square inch; breaking load, 42 pounds; breaking stress in pounds per square inch, 33,300; extension per cent. on three inches before fracture, 33·0 per cent.

From all this you will note that copper wire is both stronger and more ductile than silver. Also Professor Goodman states that if annealed copper wire be used it should, in his opinion, be annealed before plating, as a very slight amount of overheating causes the silver to scale off. For this reason, therefore, and in order to simplify matters, I have arranged with Messrs. S. Maw, Son, and Thompson to supply wire already annealed. Having wired the bones there are just two or three matters to see to. As nearly all cases of fractured jaws are compound, there is liability to sepsis and to obviate this the wound should be well irrigated and various forms of antiseptics used. It is also well to dust the wound with equal parts of iodoform and boric acid. Perfect rest must for a time be given by not allowing conversation which, as a muscular effort, disturbs the part in the early stages, and mastication must not be allowed for some weeks. Nourishment should be given in liquid form and this may well be done by fixing an indiarubber tube to the spout of a feeding-cup and then passing the tube into the mouth through the space left by the loss of a tooth. In these days of tooth degeneration we rarely find a set complete, but in

[2] THE LANCET, Dec. 3rd, 1892, p. 1266.

the improbable event of there being no such space the tube may be passed round the back of the last molar.

In concluding my paper I cannot do better than finish by stating that, judging from the long experience which I have had in the treatment of fractured maxillæ where there is displacement, the opinion I have come to is that for neatness, cleanliness, simplicity, and good results there is no better method than by wire suture. There is a claim on it, also, from a hospital point of view, as after, say, the second day, except in case of other injuries received, the patient is discharged as an in-patient. Also I believe that for surgical purposes there is a great future for the electro-motor, and that it will ultimately become an essential and invaluable aid in all complicated forms of bone-work.

It has often struck me in watching operations daily performed at the Leeds Infirmary that to open the mastoid cells by means of chisel and hammer, remove exostoses by aid of a gouge, trephine the skull by hand, drill holes through bone with gimlet or Archimedean drill, that the muscular effort required lessens the delicacy of touch so conducive to advanced work. Also in aural cases may not some cerebral irritation be induced? At present the use of the motor is limited, but there will be no difficulty in making it work perfectly an ordinary saw, drill, trephine, automatic chisel, and do any form of bone-work. In cases where electric power is not to be had either accumulated or otherwise, a spring motor might be made which would be of great service to our army surgeons in time of war. For it is important that advances made which benefit the patients in hospital should also be arranged to enable others not so situated to receive the same measure of benefit. I would suggest that the instrument be arranged to shut down into smaller space so as to be more portable. There should also be disconnecting gear in the handpiece so that if the operator lessens his grip the cutting instrument should immediately cease working, in the same way that you can by releasing a spring in the receiver of a telephone place it out of use. Of course, we must not expect that for philanthropic reasons alone electricians will bring about these changes. It will be a question of demand and supply, so that the producer may reap benefit from his efforts. We may rest assured, however, that in these days of scientific advancement our surgeons will not fail to take up anything which will better enable them to benefit their patients. In this way the demand will rise, and I fully believe that the time is not far distant when the surroundings of every surgeon will not be considered complete without an electro-motor.

Leeds.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

PYO-PNEUMOTHORAX DUE TO EMPYEMA PERFORATING THE LUNG; RECOVERY.

BY F. PERCY ELLIOTT, M.B., C.M. ABERD.

THE following case deserves to be recorded. The patient, who was a monthly nurse, aged 44 years, had up to this period of her life always enjoyed good health, having had nothing wrong with her beyond the usual ailments of childhood. She had never had bronchitis nor had she ever suffered from any chest affection previously. On her side of the family there had been no tendency to lung trouble. Her husband died from phthisis about three years before her illness and she carried out the duties of nurse, not only occupying the same room, but constantly sleeping with him down to nearly the end of his life. She had four children, all of whom exhibited a strumous taint. On Nov. 12th, 1894, while following her occupation, she suddenly experienced a sharp pain in the right breast which "caught" her on breathing. This was the first thing that led her to believe that something was wrong with her. She had neither any rigors nor any sensation of chilliness. In consequence of increasing pain she was forced to take to her bed. She at that time complained of pain in, and just below, the right breast, aggravated by deep breathing, dyspnœa, and slight cough. On palpation tactile fremitus was found diminished on the right side and percussion elicited a dull note at the base of the chest on the same side; auscultation revealed deficient breath-sounds, diminished vocal resonance, and a slight friction sound. Her temperature was 101° F. and her pulse was 100. These signs were taken to mean pleurisy with effusion. A couple of days later the effusion became very marked, respiration being much more distressing. Towards the end of the first week of the illness the fluid occupied about two-thirds of the pleural cavity and the temperature took on a hectic character. There was much sweating and the face assumed a very sallow colour, all the symptoms now pointing to empyema. At this stage the patient complained of an unpleasant taste, especially after coughing. It was decided to aspirate the chest, but before this could be done there occurred a violent fit of coughing and she expectorated about three pints of purulent material of a greenish-yellow colour, this being freely mixed with blood towards the end of the attack of coughing. The next examination of the chest showed the presence of air and fluid. The expectoration continued of the same character but gradually diminished in quantity till at the end of seven weeks from the commencement of the illness it had completely stopped, together with the cough. Pain was only felt on deep breathing. In less than three months from the date of her first symptom the patient was able to resume and carry on her duties satisfactorily. Two and a half years after this illness I took an opportunity of making a physical examination. There was no deformity resulting from her illness to be seen; the right shoulder drooped slightly, but not more than is usually met with in the majority of individuals. The breath-sounds were strong and movement on the right side of the chest was as good as on the opposite side. The only remaining trace of this illness was a slight friction sound on very deep inspiration. The woman expressed herself as feeling in excellent health and looked it.

Two points in connexion with this case seemed especially interesting—viz., the short time in which the effusion became purulent, there having been no antecedent illness, and also the quick recovery from the immediate as well as from the remote effects of a pyo-pneumothorax. With regard to treatment the measures employed were nothing out of the common. While expectoration lasted the patient frequently inhaled the vapour from a mixture of eucalyptus and thymol, the rest of the treatment consisting of a liberal diet with tonics.

Walthamstow.

NOTE ON A CASE OF COCCYGODYNIA; REMOVAL OF THE COCCYX; RECOVERY.

BY MONTAGUE D. MAKUNA, M.R.C.S. ENG., L.R.C.P. LOND.

As cases of coccygodynia are infrequent and the pathology and treatment of that disease are still *sub judice*, I might be permitted to record a case of complete recovery by the removal of the coccyx.

A lad, aged eight years, came under observation during the first week in March, 1900, suffering from severe pain over the sacral region which deprived him of sleep and from inability to assume a sitting posture. This was associated with loss of body-weight and anorexia. On examination it was found that the coccyx was pointing backwards and downwards, its end touching a seat, so as to render a sitting position painful by the pressure of the soft parts and the skin between its point and the seat. On rectal examination it was discovered that the two lower segments of the sacrum were tilted inwards and that the continuity of the sacral curve was lost. This projection on the anterior surface of the sacrum could not be reduced under pressure, as what might be called the fractured surfaces were firmly but irregularly united. There was no clear history of injury and it is questionable whether this deformity in the sacrum was due to malformation or malnutrition. No operative procedure could be undertaken to reduce the deformity without doing considerable injury to the sacral nerves. While it was necessary that the coccyx should be removed to allow the lad to sit comfortably, I was in considerable doubt whether it would relieve him of his sufferings. He was kept in a recumbent

position and lactophosphates and anodynes were administered for nine weeks without any improvement. Under the circumstances I determined to remove the coccyx and, should this fail to relieve acute pain, to follow up the operation with treatment by osmic acid. On May 10th he was put under chloroform, the coccyx was pushed out through a straight incision in the median line, severed from the sacrum with a bone forceps, and, in order to prevent any damage being done to the diaphragm of the pelvis, dissected out from above downwards. There was no bleeding and the wound healed up rapidly under dry dressings. The patient is now able to sit comfortably, is free from pain, and is gaining flesh and vivacity.

Trehertert.

HYPERPYREXIA IN ACUTE RHEUMATISM.

BY HERBERT R. C. NEWMAN, M.B. DURH., M.R.C.S. ENG., M.R.C.P. LOND.

THE following case may be of interest as showing the efficacy of the early application of cold water to the body in the above condition. On April 30th I was called to a patient, a woman, aged 30 years, and found her suffering from acute rheumatism; she had pains in the limbs with profuse sweating and a temperature of 104° F.; a mixture of 20 grains of salicylate of sodium and 10 grains of bicarbonate of potassium was prescribed and taken every three hours. On May 1st her temperature was 102° and there was synovitis in the left knee- and ankle-joints. The salicylate was reduced to 15 grains every three hours. The case followed the usual course, both knees, the left elbow, the shoulder and finger joints being successively implicated until May 13th when the patient was free from pain and her temperature was normal. On May 16th the joint pains returned and the temperature rose to 101°. On May 20th the temperature was not elevated and there was no pain or sweating. On May 21st at 6 A.M. an attack of epistaxis occurred, at 7.30 A.M. there was a severe rigor, and the temperature at 11 A.M. was 107·8°. By this time the patient was drowsy and semi-comatose, with flushed face and dry skin; the pulse was 174, very weak and irregular. She was immediately wrapped in a sheet which had been placed in water at about 90° and suspended over a tub, being rapidly sponged with water which was cooled down gradually to 48°; this sponging was continued for five minutes at the latter temperature. The thermometer in the rectum then registering 102° she was dried and placed in bed again, being now quite conscious with the pulse 140 and fuller. At 3.30 P.M. the temperature was 104° and the pulse was 160; a 30 grain powder of salicylate was taken. At 10 P.M. her temperature was 106·5° and her pulse was 170; she was very restless and was again sponged until the rectal temperature was 101°. During the night she continued very restless and another 30-grain powder of salicylate was administered. On May 22nd when seen at 10 A.M. she was much better; her temperature was 102° and her pulse was 140 and full. At 8 P.M. her temperature was normal and her pulse was 124. From May 22nd to the 27th the temperature varied from normal to 102°, there was no return of articular pains, and she has made an uninterrupted recovery. A soft mitral systolic bruit was first heard on May 28th.

Chalford, Gloucestershire.

ST. GEORGE'S HOSPITAL HUNTERIAN SOCIETY.—The annual dinner of the St. George's Hospital Hunterian Society was held on June 8th at the Trocadéro Restaurant, Dr. H. D. Rolleston, the President of the society, being in the chair. In proposing the toast of "The Queen" Dr. Rolleston alluded to the comparatively large number of St. George's men now at the front in South Africa, not only as army and civil surgeons, but in the ranks of the Yeomanry and Volunteers. The health of the "Hunterian Society" was proposed by Mr. E. B. Turner, F.R.C.S. Eng., one of its oldest members, and that of the "Officers of the Society," proposed by Dr. J. Blumfeld, was responded to by Dr. A. C. Latham and Mr. Percival. Dr. G. A. Buckmaster (next year's president), Mr. George R. Turner, Mr. Herbert Allingham, and Mr. F. Jaffrey were representatives of the staff of St. George's Hospital who with a fair gathering of members of the Hunterian Society were present at the dinner.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

WESTMINSTER HOSPITAL.

A CASE OF LYMPHATIC LEUKÆMIA OR LYMPHOCYTHÆMA TREATED SURGICALLY BY THE ESTABLISHMENT OF A COLLATERAL CIRCULATION.

(Under the care of Dr. W. MURRELL and Mr. WALTER SPENCER.)

THE establishment of a collateral circulation for the treatment of cases of ascites was first proposed by Drummond and Rutherford Morison in 1896,[1] and Morison has operated in three cases, the first of these operations being performed in 1894.[2] It has also been suggested by Talma,[3] who apparently did not know of the previous employment of this method.

A girl, aged 19 years, was admitted to Westminster Hospital on Nov. 7th, 1899, suffering from anæmia and amenorrhœa. She stated that she had been very anæmic for two years and for the last 18 months had been at home doing nothing. She had never been quite regular and for seven months the catamenia had been absent. There was considerable œdema of the lower extremities, but there was no ascites, she was not pregnant, there was no albumin in the urine, and there was no leucorrhœa. She was suffering from oligocythæmia with considerable oligochromæmia. The blood was of fair colour but appeared to be thinner than normal. The red blood corpuscles numbered 3,830,000 per cubic millimetre. The colourless blood corpuscles were 3000 per cubic millimetre, chiefly lymphocytes and finely granular oxyphile polynuclear leucocytes. She was ordered five grains of dried sulphate of iron in pill three times a day with a drachm of sulphate of sodium in hot water every morning. This was continued for a fortnight, but although she improved in strength and colour the menstrual function was not restored. On Nov. 28th she was ordered five grains of citrate of manganese three times a day, the dose being gradually increased until Dec. 8th, when she was given 15 grains four times a day. On Dec. 13th she menstruated, the period lasting two days. Four days later she left the hospital at her own request.

A few days after leaving the hospital the patient had a bad sore-throat and a cough unaccompanied by expectoration which kept her in bed for a fortnight. During this time her legs were swollen and her abdomen was greatly distended. She was re-admitted on Jan. 9th, 1900, when her temperature was 104° F. and the urine contained much blood and albumin. She had a soft apical systolic murmur conducted outwards to the axilla and round to the angle of the scapula. Her abdomen at the level of the umbilicus measured 34½ inches. It was resonant in front and on the right side, but on the left there was dulness extending from the groin to the lower margin of the ribs, and laterally from the flanks to within two inches of the umbilicus. Nothing was discovered on rectal examination and there was no indication of an ovarian cyst. There was a large quantity of fluid in the abdomen, probably confined by adhesions. The temperature during the first week always reached 101° in the evening, but there was no indication of tuberculous disease either in the lungs or in the larynx. The following report on the condition of the blood was received from the Westminster Hospital Clinical Laboratory under the direction of Dr. Lazarus-Barlow: "Blood taken from finger, 2 P.M. Drop pale and watery in appearance. Hæmoglobin, 65 per cent. Erythrocytes, 3,450,000 per cubic millimetre, of good size and shape. Leucocytes, 7000 per cubic millimetre, of which 54 per cent. are finely granular oxyphile cells and 3 per cent. are coarsely granular oxyphile cells. The remaining

[1] Brit. Med. Jour., Sept. 19th, 1896, p. 728.
[2] THE LANCET, May 27th, 1899, p. 1426.
[3] Berliner Klinische Wochenschrift, Sept. 19th, 1898, p. 823.

43 per cent. is made up of small cells having a single pale nucleus, which in most cases nearly fills the cell and is surrounded by a narrow zone of fine granules staining very deeply with methylene blue and when stained of a deep blue colour without purple tinge. For the most part, the cells are of about the size of lymphocytes, although they are totally different in other respects. A few cells have a larger amount of protoplasm, and these might as far as appearances go be hyaline leucocytes; against this is the presence in them of fine granules staining with a basic dye such as methylene blue. Upon the whole it is probable that these appearances are not artefacts and that the cells are basophile cells with fine granules." The patient passed daily about 30 ounces of urine, of specific gravity 1028, containing nearly one-half albumin and much blood. Urea, 2·5 per cent. No casts were found. The abdomen increased in size and at last became so distended as to cause the patient considerable discomfort. She was very feeble and her general condition was unsatisfactory.

On Jan. 27th Mr. Walter Spencer made an incision one and a half inches in length midway between the umbilicus and the pubes, from which about eight pints of slightly blood-stained fluid were drawn off. On exploration with the hand no disease of the abdominal viscera could be detected. A large glass drainage-tube was left in the abdomen and from this there exuded on the 28th, 34 ounces; on the 29th, 25 ounces; on the 30th, 45 ounces; and on the 31st, 30 ounces of blood-stained serous fluid. The tube was withdrawn on Feb. 5th and the wound was allowed to heal. On Feb. 12th the spleen was found to be enlarged, its lower edge being felt two inches below the ribs. The fluid in the abdomen gradually re-accumulated; the urine still contained large quantities of albumin, and the patient's general condition once more assumed a very unsatisfactory aspect. It was now determined to endeavour to establish a collateral circulation, and on Feb. 20th Mr. Spencer attached a piece of the omentum about two inches square to the anterior abdominal wall by kangaroo stitches. The vessels within the abdomen were congested and the veins were widely distended. On March 14th the superficial abdominal veins were noted to be larger. The wound was practically healed and there was no return of the distension of the abdomen. The mitral regurgitant murmur was more marked and in addition there was a loud systolic murmur heard most distinctly over the left second intercostal space and adjacent portion of the sternum. The albumin had disappeared from the urine. On April 19th the following report of the patient's blood condition was received: "Blood taken from finger 3.30 P.M. Hæmoglobin, 65 per cent.; erythrocytes, 3,000,000 per cubic millimetre; leucocytes, 4640 per cubic millimetre; finely granular oxyphile cells, 56 per cent.; coarsely granular oxyphile cells, 6 per cent.; hyaline cells, 20 per cent.; and lymphocytes, 18 per cent. The hæmoglobin value of each corpuscle is about 100 per cent. The erythrocytes are irregular in size and shape. Many of the hyaline cells and lymphocytes possess a granular cytoplasm, the granules staining with methylene blue. It is doubtful whether these are basophile cells or whether the appearance is artificial." The patient gradually improved in health and strength and was discharged on April 19th. The aortic murmur had disappeared and the mitral murmur was soft and very faint. On June 1st she was reported to be in good health.

Remarks by Dr. MURRELL.—There may be some difference of opinion respecting the nature of this case, but the diagnosis presents no difficulty. The patient when originally admitted was suffering from oligocythæmia and oligochromæmia, but the condition became one of lymphatic leukæmia or lymphocythæmia. It will be noted that when first admitted her leucocytes numbered only 3000 per cubic millimetre, but on the second examination they had risen to 7000 per cubic millimetre. The normal ratio of white to red corpuscles is 1 in 700, but in this case it is 1 in 493. The presence of finely granular basophile cells with the absence of non-granular cells is indicative of some pathological condition of the hæmatopoietic tissues. We find a diminution in the number of the red blood corpuscles and in some cases of leukæmia the condition is carried to an extreme degree so that they fall to 1,000,000 per cubic millimetre. The number of leucocytes varies in different cases, but the abnormal elements always persist. The essential change is the presence throughout the body of large numbers of small non-nucleated cells due to excessive proliferation. The infiltration of the hæmatopoietic tissue of the bone-marrow, with a gradual diminution of the blood-forming area, has resulted in anæmia. The muscular substance of the heart had probably undergone a form of degeneration from the deposition of fine granules within the fibres. The alteration in the composition of the blood played an important part in the production of the œdema by increasing the permeability of the vessel walls. The ascites was also due to the condition of the hæmatopoietic system, for as a result of venous stasis transudation from the peritoneum was taking place. The albumin in the urine may have been due to renal cirrhosis consequent on the long-continued interference with nutrition processes. The attempt in this disease to establish a collateral circulation is a new departure in surgery. The immediate result has been extremely satisfactory, but how far it will prove permanent remains to be seen. It must be remembered that the prognosis in cases of leukæmia treated by ordinary methods is extremely unfavourable. The administration in the early part of the case of a new soluble salt of manganese resulting in the re-appearance of the catamenia is worth mentioning.

Remarks by Mr. WALTER SPENCER.—Some cases, after repeated tappings for ascites, have been known to recover, no further peritoneal exudation occurring. Such recoveries have been attributed to the vascular anastomosis set up by the formation of adhesions between the viscera and parietes. Indeed, one has heard of the tapping immediately preceding the recovery having been followed by some septic peritonitis, and the existence of such adhesions has been frequently noted post-mortem. The clinical signs of the establishment of a vascular anastomosis through adhesions is the appearance of dilated veins over the epigastrium and wall of the thorax in which the current of blood is upwards. In marked cases of dilatation of the veins a fanciful comparison has been made with the Gorgon's head and its crown of snakes, "caput Medusæ." Hence have arisen attempts by surgeons to establish artificially such a vascular anastomosis in order to prevent the recurrence of peritoneal exudations. For this purpose adjacent peritoneal surfaces over the liver have been scratched or the spleen or omentum has been fixed in the abdominal wound. There appears to be no special danger connected with such operations. The adhesions are well above the umbilicus, so that there is no probability of a coil of intestine becoming strangulated beneath the band; for the same reason the gap in the abdominal wall is not likely to lead to a ventral hernia. The operation is at present an empirical, in other words an experimental, one. The pathological explanation of the production of the peritoneal exudation and of its prevention by establishing a viscero-parietal vascular anastomosis is not yet sufficiently clear.

LEEDS GENERAL INFIRMARY.

A CASE OF STRANGULATED FEMORAL HERNIA IN WHICH GANGRENE WAS PRECIPITATED BY AN INTRA-ABDOMINAL VOLVULUS.

(Under the care of Mr. R. LAWFORD KNAGGS.)

THE following case is an example of a condition to which until recently very little attention has been devoted. In all cases of volvulus some condition must be present which will fix the bowel in the abnormal position, otherwise the intestine will spontaneously untwist. In many cases of volvulus the weight of included fæcal matter is sufficient to effect the fixation; in the case recorded below the entrance of the loop of bowel into the hernial sac prevented the spontaneous reduction of the volvulus. An interesting case is related by Mr. R. W. Parker[1] in which a volvulus complicated a strangulated femoral hernia but in which there was apparently no causal connexion between the two conditions.

A woman, aged 61 years, who had worn a truss for a left femoral hernia for many years, was admitted into the Leeds General Infirmary on Jan. 6th, 1900. Six days previously the rupture had come down and could not be put back and severe pain and vomiting immediately followed. The bowels had not been opened since. Three days before admission she had been urged by a medical man to go into the infirmary to undergo an operation, but she had resolutely declined. When at last she consented the tumour was of the size of an orange, ill defined, and very tender, and the overlying tissues were red and œdematous. The pulse was 100 and the tongue was moist.

Without delay herniotomy was performed. The sac was found to be gangrenous and infiltrated with pus and adherent

[1] Transactions of the Clinical Society of London, vol. xxvii., p. 159.

to a knuckle of small intestine which was quite dead and did not bleed when incised. There was no fluid in the sac. On opening the bowel no escape of contents occurred, and on attempting to pass a director along the lumen of the gut it could not be introduced beyond the ring. All pus was now carefully wiped away and the parts about the sac were made as clean as possible, and the incision was extended upwards through Poupart's ligament so as to expose the bowel at the entrance to the ring. An interesting disposition of parts was at once revealed, fully accounting for the failure to pass the probe upwards and for the absence of relief. The loop contained in the hernial sac constituted the chief portion of a small volvulus, the neck of which lay just within the abdominal cavity close up against the femoral ring. The twist was one of 180 degrees from right to left and the distended bowel above the twist hung down into the pelvis, whilst the empty bowel coursed directly upwards upon the psoas and iliacus muscles. At the neck of the volvulus the upper end of the loop lay superficial to the lower end. The twist, which constituted a very effective obstruction, was undone and the gangrenous loop was removed, the two extremities being united over a Robson's bobbin. The gangrenous sac was also removed and the wound was closed except for a gauze drain which was inserted down to the seat of union. The patient was completely relieved of vomiting and pain and was able to pass flatus, but death took place 26 hours after the operation from gradual cardiac failure.

Necropsy.—At the post-mortem examination the united bowel was found to be in a satisfactory condition and no unhealthy peritonitis was present. The kidneys were granular and in an advanced stage of disease.

Remarks by Mr. LAWFORD KNAGGS.—Probably most surgeons who have had a considerable hospital experience can call to mind cases of gangrenous herniæ in which after the bowel has been laid open with intent to produce an artificial anus no relief has taken place. Such a case fell to my lot a year or more ago, and after 24 hours I had to open the abdomen above Poupart's ligament and make an opening in the distended coil above the hernia to obtain a relief which unfortunately came too late. At the time of the second operation the cause of the continuance of the obstruction was not made out, and no satisfactory explanation was forthcoming after the post-mortem examination, at which, unfortunately, I was unable to be present. The case recorded above, therefore, from this point of view alone is of considerable interest.

There can be little doubt that in this case the volvulus exerted a determining influence in the production of gangrene of the herniated intestine. For years probably bowel had entered the sac at intervals and had been replaced without harm. On this occasion a small loop chanced to enter in a reversed position and the traction exerted upon the intra-abdominal ends of the loop led to them becoming tightly crossed as in a figure 8 close up to the femoral ring. Immediately an obstruction was formed, not only to the passage of the intestinal contents but to some extent, no doubt, to the circulation. Rapid distension of the loop and engorgement of its coats ensued, and a further and more rigid interference with the circulation resulted as the femoral ring began to restrain the expanding and swelling gut. The onset of these changes must have been rapid, for one is justified in assuming that gangrene quickly supervened from the fact that fluid, with the exception of a slight smearing of pus, was entirely absent from the sac.

Elsewhere[2] I have attempted to study the subject of volvulus as it is met with in connexion with herniæ and I have been able to recognise four well-marked groups of cases. The present case, which was met with after my first paper had been accepted for publication, is an excellent example of the first group. That group includes those cases of volvulus in which the neck lies within the sac, or outside it but close to the ring. Now, though when dealing with the subject generally both these sets of cases were classed together for pathological reasons, yet it is clear that from the clinical standpoint the relation which the neck of the volvulus bears to the neck of the sac is a matter of no small importance. When the neck lies within the sac the exact nature of the condition is at once apparent when that is opened, and the twist can be undone and the bowel returned, if fit, as in the ordinary operation for strangulated hernia. But if the neck of the twist lies close to the ring within the abdomen, its existence may not even be suspected, and if the gut is gangrenous, as is most likely where the rupture is of the femoral variety, and the case is dealt with by the formation of an artificial anus, an abiding obstruction will be left and no relief will take place. Such a condition is, however, now less liable to be overlooked because resection of the gangrenous loop is becoming more and more the rule. But should it be decided for any reason to form an artificial anus, if no relief takes place when the bowel is opened and if the director cannot be readily introduced within the bowel well beyond the ring, then the incision should certainly be extended to investigate the condition of parts within the abdomen, and with the intention of removing the damaged gut.

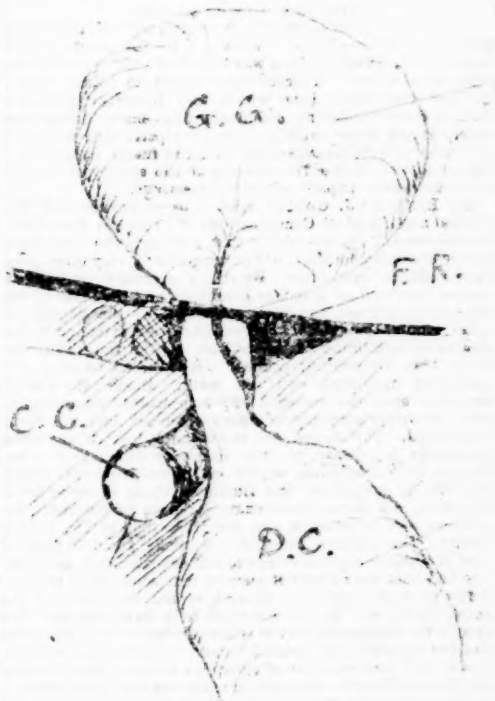


Diagram showing the position of the parts found at the operation. G.G., Gangrenous gut. F.R., Femoral ring. D.C., Distended coil of gut hanging into the pelvis. C.C., Contracted coil of gut directed upwards over the psoas muscle.

It is a simple thing for a loop of bowel to enter the hernial sac in the reversed state, but when once it is engaged the twist may easily become effective. In femoral herniæ under such circumstances the danger of gangrene is greatly increased. It is probable that such a disposition of parts as is shown in the diagram is not infrequent. Its importance is obvious, and it is certainly one that might easily be overlooked or disarranged in making a post-mortem examination.

The want of success in this instance was due entirely to the co-existence of advanced renal disease which would almost certainly have prevented recovery after any operation of importance, but which, even if detected in time, could not have been held to justify non-interference in strangulated hernia.

[2] Annals of Surgery, vol. i., 1900, p. 605.

THE INFIRMARY AT BRECHIN.—The Chairman, at a meeting of the directors of this infirmary, held on June 4th, announced the receipt of a donation of £1000 from Mr. Duke, Bearchill, which is to be applied in helping to pay the cost of maintaining two beds in the name of Mr. Duke and his wife.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Alterations in the By-laws.—The Medical and Surgical Complications of Pyorrhœa Alveolaris.

A MEETING of this society was held on June 12th, Dr. F. W. PAVY, the President, being in the chair.

On the recommendation of the council several important alterations in the by-laws were put to the meeting and carried. The effect of these was threefold—viz.: (1) that the publication of the "Proceedings" would in future cease; (2) that the restrictions which had hitherto prevented Fellows from publishing communications made before the society in any other medical journal or periodical would be removed; and (3) arrangements would in future be made for the publication in the Transactions of the society of reports of the debates on papers read at the meetings.

Mr. RICKMAN J. GODLEE read a paper on some of the Medical and Surgical Complications of Pyorrhœa Alveolaris. He commenced by remarking that although the complaint was a very common one it did not apparently very often give rise to serious symptoms. Pyorrhœa alveolaris or Riggs's disease consisted of a spongy condition and recession of the gums, accompanied, and perhaps caused, by the deposit of tartar around the teeth. The inflammation extended to the peridental membrane or periosteum of the fang with the result that suppurating pockets were formed between the peridental membrane and the tooth. Some held that it depended upon the presence of some special micro-organisms; but the accuracy of this statement had not been established. The disease was one of adult life; it was often apparently hereditary, chronic, and very difficult of cure. Though not usually the source of serious trouble it might give rise to symptoms that simulated those of more grave disorders. Of these, three examples were given from Mr. Godlee's own experience and one from that of Dr. Sidney Martin. The first case was that of a woman, about 40 years of age, in whom a copious offensive red expectoration occurred. She had been the subject of pleurisy and some renal trouble. A few physical signs were present on the right side of the chest, giving rise to the suspicion of a basic cavity. The symptoms disappeared on the effectual treatment of the gums and the digestion and general health improved remarkably. The second case was that of a married woman, aged 25 years, which resembled the first case in many respects. Examination of the expectoration showed that it contained, like the first case, a large quantity of squamous epithelium and separated into two layers. After adequate treatment directed to the gums she lost all her troublesome symptoms. The third case was that of a man, aged 66 years, who presented the disease in a very advanced condition and was attacked by acute glossitis and stomatitis with diarrhœa and pyrexia. These were apparently caused by the state of the gums, for they disappeared when the condition of pyorrhœa alveolaris was remedied. In the fourth case, that of a woman, aged 43 years, the symptoms of cancer of the stomach were apparently caused by pyorrhœa alveolaris; but all the symptoms disappeared when the gums had been effectually treated. In the course of the paper the question of treatment was briefly discussed.

Dr. JAMES DONELAN remarked that the subject was one of considerable interest. Referring to the supposed presence of uric acid in the gums he believed the condition of pyorrhœa alveolaris often had a constitutional origin. He mentioned the case of a man, aged 64 years, a great sufferer from gout, who for some years presented a marked condition of pyorrhœa alveolaris. Whenever this was neglected the symptoms recurred again, but when this was attended to he remained well. In another case, that of a man between 26 and 30 years old, pyorrhœa alveolaris was attended by enlargement of the cervical glands; when the gums were neglected the glands enlarged, but they subsided when these were treated. He believed that sufficient attention was not paid to the teeth in these cases of glandular enlargement.

Dr. GEORGE E. HERMAN referred to the case of a woman from whom he had removed a pyosalpinx in April. During the following week the temperature was raised every day to between 100° and 101·5° F. This could not be attributed to the operation in any way. The patient was found to be suffering from pyorrhœa, and nine days after the operation a dentist was called in who prescribed an antiseptic mouth-wash when the temperature (of which a chart was shown) immediately subsided to normal.

Mr. W. G. SPENCER asked for a more precise definition of the disease and what degree of pyorrhœa was necessary to produce these symptoms. Patients had sometimes come to him for throat affections in which the teeth might have been the source. He had seen cases of muco-purulent pharyngitis set up by a bad state of the teeth and gums. He desired to emphasise the necessity of constant treatment. A persistent dressing of the teeth by the patient should be insisted on. He had recently had a case of pyosalpinx under his care with pyorrhœa alveolaris which had produced anæmia, and he had seen septic conditions set up entirely by bad teeth.

Dr. T. D. SAVILL remarked that he could not agree with Mr. Godlee in thinking that pyorrhœa alveolaris did not give rise to serious symptoms. Very serious nerve symptoms of the class called functional might be produced by the condition. A woman, aged 32 years, consulted him recently with all the symptoms of aggravated hysteria on which the usual remedies had no effect until some stumps concealed beneath her artificial plate had been removed, when she made a rapid recovery. Another case was that of a professional man who gradually drifted into melancholy and committed suicide. A third case was that of a woman suffering from trifacial neuralgia of four years' duration which remained wholly unrelieved until the suppurating sockets of her teeth were properly attended to. In quite a large proportion among his out-patients at the West-end Hospital for Diseases of the Nervous System the cause could be traced to pyorrhœa alveolaris, and among the symptoms they presented were listlessness, restlessness, a sense of fatigue, tingling of the extremities and actual œdema which differed from ordinary anasarca in requiring more prolonged pressure to produce the pitting, headache, shivering attacks, nervousness, irritability, depression, dyspepsia, and a number of others.

Mr. C. S. TOMES remarked that the prominent place assigned to the expectoration as a symptom by Mr. Godlee was not in accordance with his experience. The expectoration and discharge from the gums were usually swallowed and were therefore not prominent features in an average case. It was only at night that any bloody fluid ran out and stained the pillow. In answer to the questions, What degree of pyorrhœa was necessary to produce symptoms? and how did the condition differ from senile conditions of the gums? if without obvious cause pressure along the margin of the gums caused purulent fluid to come out of the sockets of the teeth pyorrhœa alveolaris was present; and this was sufficient to produce symptoms. Referring to the question of treatment, antiseptics applied between the tooth and the gum greatly improved matters at once, but this did not always last. Another form of treatment was that originally practised by Riggs which consisted of scraping away the margin of the alveolus. It was a very tedious and painful operation. This for a time also relieved, but here also relapses occurred. The disease occurred in animals as well as in mankind. Persons suffering from the disease presented a very characteristic sallowness. If a tooth were extracted from an affected socket it was extremely rare for the wound to go wrong, strange as this might seem. As to the presence of urates in the tartar there was no reliable evidence in this matter and fallacies were numerous, especially in the murexide test, which was the one that had been employed.

Dr. W. EWART remarked that this debate demonstrated the value of having a jointly medical and surgical discussion. Many men were very familar with the far-reaching effects of this disease, though the symptoms were not described in books. Some of the symptoms belonged to the so-called functional neuroses and the effects so produced might be sufficient to ruin the life of the individual as a wage-earner or useful member of society. The symptoms, however, were eminently curable. He wished particularly to take exception to the statement that the disease did not lead to serious consequences. He wished to refer to one or two in particular. The fœtor of bronchiectasis was largely dependent, he believed, in some cases at any rate, on infection from the mouth. He believed that pyorrhœa alveolaris was also capable of generating malignant endocarditis. He considered that many cases of so-called primary malignant

endocarditis might be explained in this way—viz., the source of infection being in the mouth. He thought that three cases he had recently seen were probably instances of this mode of causation.

Mr. WILLIAM HERN discussed the question whether the pyorrhœa was of constitutional or local origin. Patients were often suffering from gout or rheumatism or some other constitutional condition, but in his belief it more often had a local origin. The malady frequently started from one or two teeth. It rapidly improved under local treatment, especially antiseptic measures, and if the affected tooth were extracted the disease came at once to an end. He had seen cases of acne rosacea improve after effectual treatment of the concurrent pyorrhœa.

Mr. W. B. PATERSON referred to the case of a married woman, aged 35 years, who for two years had been under medical treatment for a purulent discharge which she said she coughed up. She was treated by many different specialists for disease of the nose, the pharynx, the ear, and finally the mastoid cells were trephined; but at the end of two years, after spending a fortune in medical advice, the pyorrhœa was treated daily for a week and she improved at once.

Mr. GODLEE, in reply, said the discussion had brought out a large number of interesting facts. A desideratum was, however, still wanting in a satisfactory method of treatment which the patient could employ himself. He had seen tuberculous glands in the neck develop as a result of pyorrhœa. As to the presence of squamous epithelium in the sputum this could always be obtained in large quantity from the saliva, especially when the patient sucked his gums.

OBSTETRICAL SOCIETY OF LONDON.

Extra-Uterine Gestation.—Exhibition of Specimens.

A MEETING of this society was held on June 6th, Mr. ALBAN DORAN, the President, being in the chair.

The PRESIDENT read a paper on a case of Extra-Uterine Gestation in which Fœtal Death occurred at the eighth month after Spurious Labour; Abdominal Section two months Later. The patient, aged 34 years, became pregnant for the fifth time, after an interval of four years, in February, 1899. Abdominal pains occurred early; diarrhœa caused trouble from July to the end of October, when labour pains and hæmorrhage set in, followed by septic symptoms. The outline of a fœtus could plainly be felt through the parietes. On Dec. 12th it was removed by abdominal section. It was very fœtid and had developed in the posterior layer of the right broad ligament. The sac was packed with gauze for a few days and then drained; the placenta came away in fragments. A fæcal fistula developed and discharged for a few weeks. For six weeks the patient did very well, then symptoms of chronic obstruction with great emaciation set in, and she died in the ninth week after operation, flatus passing to the last. Several coils of small intestine had been dragged upon by the contraction of the sac; the adhesions involved several surfaces of mesentery, which seemed to account for the emaciation, strongly marked in this case, where there was but little vomiting or distension. The President dwelt on the infection of the sac, especially common in posterior tubo-ligamentary pregnancy (Taylor), on the diarrhœa observed when placenta was attached to intestine (Freund), and on the inanition caused by the changes noted in this case. As there was no true sac-wall inferiorly in this form of ectopic gestation complete extirpation of the sac seemed hardly possible. He dwelt on Dunning's case and on those collected by Jayle and Delherm, and expressed doubts as to the precise anatomical character of the sac in some of these cases. Finally, the President agreed with Taylor in preferring to pack and drain the sac, but did not know of any method of dressing which could obviate the dangers which followed the contraction of the sac-wall.

Mr. BUTLER-SMYTHE said that in this particular case the fœtid contents of the sac would alone have prevented any attempt at enucleation. He considered that the patient's life had been prolonged owing to the treatment adopted by the President, who repeatedly washed out the sac with a strong solution of iodine before closing the wound. He (Mr. Butler-Smythe) advocated this method in all similar cases.

Dr. C. J. CULLINGWORTH congratulated the President on his paper and wished to endorse his opinion of the great value of Mr. J. W. Taylor's recent work on extra-uterine gestation. He agreed with him that although the ideal method of dealing with the sac was to remove it there were cases, such as the one under discussion, where such a procedure was impracticable. If the sac were left free drainage was important, but he disapproved of packing the cavity with gauze, especially in the case of a necrotic gestation sac. Gauze packing was, however, useful for checking hæmorrhage or for the prevention of secondary hæmorrhage. He considered that antiseptic irrigation of a necrotic gestation sac might temporarily deodorise, but could not disinfect, its walls. Moreover, irrigation had its dangers and putrid matter might be carried through lesions in the continuity of the sac-wall to adjacent structures. Irrigation as a routine practice in gynæcological surgery should be less generally adopted. He considered that Freund's view which the President had adopted, that the diarrhœa in these cases was an indication that the placenta was attached to intestine, was not always correct, and that the diarrhœa was partly the result of irritation from pressure and was partly one of the symptoms of septic infection. This case bore out his opinion that spontaneous closure of fæcal fistulæ might always be reasonably hoped for when they were not too low down in the rectum and when the subjects were free from tubercle or malignant disease. He did not believe that this patient's life could have been saved by any treatment.

Mr. J. D. MALCOLM had seen the patient before and during the operation and thought that the President had, if anything, understated her extreme emaciation and debility. The development of fæcal fistulæ within a few days of the operation proved that it would have been impossible to remove the sac. He agreed with Dr. Cullingworth that washing out the abdomen was done too frequently, but in this case with a putrid cavity and much sloughing placental tissue on its walls it was most necessary. As regards the mode of death, judging by the alternate distension and flattening of the abdomen, he thought there must have been an escape of gas from the upper bowel as long as the patient lived. Thus the symptoms were not those of obstruction of the bowels, although an obstruction, with a fistula, actually existed, and death was due to exhaustion and malnutrition.

Dr. ROBERT BOXALL had twice seen a fæcal fistula heal in the same patient when in a serious condition of ill health from a suppurating dermoid tumour. It was an important fact that such fistulæ would sometimes heal even when the patient was seriously ill. He suggested that a rubber bag (like a child's balloon) might with advantage be substituted for gauze packing. By attaching a tube and funnel and filling with solution pressure could be regulated to a nicety. It could be emptied by syphoning out the fluid and easily refilled, thus avoiding the disadvantages of repacking.

The PRESIDENT noted that Tait's "abdominal pregnancy" was a tertiary change, as Taylor had ably demonstrated; a tubal sac burst in the first place between the layers of the broad ligament and afterwards this secondary intra-ligamentary pregnancy burst into the peritoneal cavity. Taylor distinguished a more frequent secondary form of abdominal pregnancy. The President's own case was one of the typical "posterior tubo-ligamentary" varieties of Taylor. He was relieved to find that the society supported him in his opinion that no attempt should have been made to remove the sac. In that case the diarrhœa prevailed before the death of the fœtus, and the placenta was, in fact, attached to the rectum. These facts supported Freund's theory. Pure tincture of iodide, as Mr. Butler-Smythe had observed, was an excellent application for an irremoveable fœtid cyst-wall. He was compelled to wash out the sac freely on account of the fragments of placenta and fæcal matter which it contained. Antiseptic lotions stimulated the exposed tissues and caused granulations to develop, yet ulceration or sloughing might occur in very sickly cases, as Dr. Cullingworth, who objected to lotions, had implied. He had removed the packing within a few days. Dr. Boxall's suggestion that the sac might be prevented from too rapid contraction by means of an inflatable thin rubber bag seemed worth a trial. The fistula was low down in the rectum. In conclusion, the President feared that the operator must still depend more than he cared for on luck, as no certain method for preventing the dangers due to contraction of an irremoveable sac of this kind was at the operator's disposal.

The following specimens were shown:—

Dr. W. S. A. GRIFFITH: (1) Squamous-celled Epithelioma

of the Cervix Uteri in a Very Early Stage; and (2) Squamous-celled Epithelioma Invading Surrounding Tissues like a Columnar-celled Variety.

Dr. H. RUSSELL ANDREWS: Sarcoma of the Uterus.

Dr. HUBERT ROBERTS: (1) Large Cystic Fibro-myoma Adenoma of the Cervix Uteri; and (2) Microscopical Sections Illustrating Various Forms of Uterine Adenoma.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

Tubal Pregnancy.—Pan-Hysterectomy.—Delivery of the Placenta.

A MEETING of this section was held on May 25th, Dr. A. V. MACAN, the President, being in the chair.

Dr. ALFRED SMITH showed a specimen of Ruptured Tubal Pregnancy, consisting of the distended tube showing rupture, the fœtus (three centimetres long), with umbilical cord and placenta. It was removed from a patient, aged 33 years, who had given birth to a full-term child six months previously. Menstruation returned one month after confinement and continued regularly up to the time of rupture; no period had been missed. The patient was brought to Dublin from Kilkenny. Convalescence was normal.

Dr. F. W. KIDD read notes of a successful case of Pan-hysterectomy performed on the Pregnant Uterus at Full Term. The patient was a primipara of over 40 years of age. The presenting part could hardly be reached owing to the whole of the true pelvis being blocked with myomatous growths and no definite diagnosis of the presentation could be arrived at. An abdominal incision was made extending from two inches above the pubes to two inches above the umbilicus. The broad ligaments were first ligatured and then cut, then the round ligaments, and then the peritoneum on the outer surface of the uterus was divided transversely and stripped down, taking the bladder with it; the uterine vessels were tied, and when the peritoneum had been stripped down posteriorly the vagina was cut across as close to the presenting head and arm as possible. The vagina was inverted and sutured, turning in the mucous membrane, the broad ligaments were brought together, and in the middle line the peritoneum attached to the anterior surface of the bladder was sutured to the peritoneum on the posterior wall of the vagina, completely covering over the stump of the vagina and leaving the pelvis quite clean and dry; the ligatures on the uterine vessels had been drawn down before the peritoneum was stitched over them. The patient made a good recovery. The specimen, which was exhibited, contained the child in the uterus, only the head and one shoulder having escaped from it. The method of preserving the specimen was as follows:—Fluid No. 1: formalin, 10 parts; acetate of potash, 15 parts; chloride of potash, 0·5 part; water, 100 parts. The specimen was placed in this for 48 hours, changing at the end of 24 hours. Fluid No. 2: methylated spirit, 80 parts; water, 10 parts. The specimen was placed in this for 48 hours, changing at the end of 24 hours. Fluid No. 3: pure methylated spirit. The specimen was placed in this for 48 hours. Fluid No. 4: glycerine, 20 parts; acetate of potash, 10 parts; water, 100 parts. The specimen was preserved permanently in this.

Dr. HENRY JELLETT read a paper entitled, "The Dublin Method of Effecting the Delivery of the Placenta." He commenced by remarking that in 1876 two well-known medical writers called attention to the fact that the method of effecting the delivery of the placenta by external manipulations, as opposed to its manual removal or to its delivery by traction upon the funis, had been first introduced in Dublin, and that it was identical with the method of obtaining the same object which had been introduced at a later date in Germany by Credé of Leipsic. In 1900, all German, and the great majority of British, works on midwifery term this method "Credé's method," while the few works which allude to the fact that the Dublin school of midwifery had some share in introducing this most important improvement in the management of the third stage consider that there is a difference between the Dublin method and Credé's method. He said that his paper was written to prove: (1) that the method of obtaining the delivery of the placenta by external manipulations as opposed to its manual removal or its delivery by traction on the funis was originated in Dublin; (2) that Credé's method was identical in principle with the Dublin method and that it rapidly came to assimilate itself to the Dublin method in its most important details; and (3) that consequently there is no difference between the Dublin method and Credé's method and that inasmuch as the method originated in Dublin many years before the time that Credé discovered it for himself its name is, and ought to be, "the Dublin Method." Dr. Jellett then described the gradual evolution of the Dublin method of effecting the delivery of the after-birth from the time of Fielding Ould up to the time of Sinclair and Johnston. He then described Credé's method in Credé's words as taught by him in 1853, and said that in 1860 Credé brought his method prominently before the German medical world at a meeting of the Association of Physicians and Naturalists held in Königsberg. In Dublin the method had been practised clinically at the Dublin Lying-in Hospital from time immemorial.—Dr. W. J. SMYLY said that they should be thankful to Dr. Jellett for the proofs which he had brought forward. Nevertheless, he thought that there was a distinction between Credé's method and the Dublin method. The fault of Credé's method was that it was too active and if they expelled the placenta too soon they might leave portions behind leading to post-partum hæmorrhage and sub-involution. Another point likely to be lost to the Dublin school was the method of preserving the perineum, generally known as von Ritgen's method, which undoubtedly originated in Dublin.—The PRESIDENT said that the question was whether the Dublin method was the same as Credé's. As far as he could see the Dublin method differed in that in it the hand was applied to the abdomen and pressure begun as soon as the child's head was born, the pressure being used to express the shoulders and then continued to expel the placenta. He wished to emphasise the fact that the Dublin method began before the third stage of labour—namely, the moment the child's head was born. He was convinced that in the great majority of cases the third stage of labour should be left alone as well as the second stage.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on May 15th, Mr. W. H. Horrocks, jun., being in the chair.—Dr. C. C. Baxter-Tyrie read notes on a case of Thoracic Aneurysm. The patient was a man, aged 51 years, whose illness commenced about two years previously. While engaged in valuing some stock on a farm he jumped about eight feet down into a field and "felt something give way" in the lower sternal region and at once became faint. He was taken home and an hour afterwards he expectorated about a teacupful of pure blood. Physical examination revealed no abnormal signs except rhonchi at the bases of the lungs. There was no return of the bleeding and after a few months the man apparently recovered, although from time to time there was an irritating cough and some oppression at the chest. Five months before he died œdema of the lower extremities was noticed; there was much wasting and the patient complained of a constant irritating cough and of dyspeptic symptoms. There was pain in the epigastrium which passed through to the back and at times extended round the body, following the course of the eighth and ninth dorsal nerves. There was accentuation of the second sound of the heart, otherwise the physical examination of the heart area showed nothing abnormal. There was no alteration in the radial pulses, no pupil change, no dysphagia, and no alteration in the mobility of the trachea. A constant irritating cough was present but there was no peculiarity in its intonation. There was occasional paroxysmal dyspnœa with inspiratory stridor. From time to time small quantities of blood came up into the mouth without effort. The patient died suddenly while in bed from profuse hæmorrhage. There was no necropsy.—Dr. J. Kerr, Dr. H. J. Campbell, and Dr. H. C. Major discussed the case and Dr. Baxter-Tyrie replied.—Dr. R. H. Crowley read a paper on Uræmia. It was concluded that all cases of uræmia were due to the retention of some toxic substance or substances in the blood which should have been excreted by the kidneys. The poison might not be always the same, nor was its non-excretion necessarily due to renal inadequacy alone. In regard to treatment it was urged that preventive treatment was of the first importance in all cases in which it was likely or possible that uræmia might occur. Attention to the free action of the bowels and of the skin together with

regulation of the diet were most important from the point of view of prevention. During a mild uræmic attack where there was much vomiting the use of an enema of magnesium sulphate was advocated as being of great value. In using the hot vapour bath the danger was mentioned of prolonging it in cases where sweating was not soon induced. To promote sweating the careful use of pilocarpine in doses of one-tenth of a grain was advocated, the patient being first put into a hot pack and a copious draught of hot tea having been administered. In some cases of convulsions, in eclampsia, and where there was a high tension pulse the withdrawal of 20 ounces of blood was often followed by very marked relief. Lavage of the stomach was alluded to as a means of treatment which was neglected somewhat in England, and which was likely to give beneficial results. The injection of saline fluid, either directly into a vein or preferably into the loose subcutaneous tissues, was favourably spoken of.—Mr. W. H. Horrocks, jun., read a paper on the Medical History of Gibbon the Historian.—Specimens were shown by Dr. S. Lodge, jun., and Dr. R. H. Crowley.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on May 18th at the Medical School, Leopold-street, Sheffield, the President, Dr. J. B. Hellier, being in the chair.—Dr. H. Briggs (Liverpool) showed numerous specimens and water-colour drawings illustrating the various types of villous endometritis, and of benign and malignant adenoma of the uterus. He alluded more particularly to the difficulty of deciding upon the microscopic evidence between inflammatory conditions of the endometrium and malignant adenomatous disease of the uterine glands and quoted several illustrative cases.—Remarks were made by Dr. A. Donald (Manchester) and Dr. Martin.—Dr. Donald showed a Uterus with Multiple Fibroids and containing a fœtus of four and a half months' development. The tumours were situated in the pelvis, below the fœtal sac, and would have obstructed labour. The whole mass was successfully removed by abdominal hysterectomy. —The President showed a Large Dermoid Cyst with a twisted pedicle successfully removed by abdominal section.—Dr. A. W. W. Lea (Manchester) read a paper entitled the Influence of Gonorrhœa on the Puerperium, with Notes of 50 Cases. The diagnosis of gonorrhœa at the time of labour was based upon the occurrence of ophthalmia neonatorum in the infant within three days of delivery, combined with the previous clinical history of the case. The puerperium was normal in 60 per cent. of the cases, as judged by the absence of pyrexia. In four of these, however, at the fourteenth day there was some evidence of pelvic inflammation. In two cases there was perimetritis with swelling in the region of the appendages, and in two cases parametritic exudation was present. In 40 per cent. of the cases the puerperium was abnormal, characterised by pyrexia, often severe, together with symptoms of local infection of the genital tract. The rise of temperature usually commenced on the third or fourth day after delivery and was usually associated with purulent discharge from the uterine cavity. In many of the cases the infection remained limited to the uterus, but in five instances (10 per cent. of the total number) acute pelvic peritonitis ensued with a severe illness lasting some weeks. Details were also given of three cases in which a previously existing gonorrhœal infection of the appendages became virulent during or immediately after labour, each case terminating fatally. From a study of these cases and a review of the literature of the subject the following conclusions were drawn:—1. The presence of a purulent vaginal discharge during labour which was capable of causing ophthalmia neonatorum rendered the patient liable to puerperal infection. 2. This infection was in many cases a mixed one, the gonococcus being associated with staphylococci and streptococci. The gonococcus itself was capable of causing severe infection and might be obtained in pure culture from the cavity of the uterus (Kronig Bumm). 3. Lacerations of the perineum, vagina, or cervix, forceps deliveries, and prolonged labour greatly increased the liability to infection. 4. The types of disease met with were—(1) purulent endometritis, (2) acute pelvic peritonitis with metritis, (3) acute parametritis, and (4) septicæmia (rare). 5. In some cases an old infection of the appendages might light up during labour or after delivery leading to acute peritonitis which might be fatal. 6. The prognosis as to life was usually good, though recovery was often imperfect. 7. The treatment by vaginal douches after labour was insufficient in many cases to prevent infection of the endometrium. 8. If infection of the uterus occurred uterine douches should be given daily, the patient maintained at absolute rest, and a careful watch kept for evidence of localised pelvic peritonitis. If douches failed to control the infection the uterus might be explored and curetted if there was evidence of retained products or hypertrophy of the decidua. Cases of localised pelvic peritonitis requiring operation should be treated by vaginal section.

Reviews and Notices of Books.

Heart Disease with Special Reference to Prognosis and Treatment. By Sir WILLIAM H. BROADBENT, Bart., M.D., F.R.S., F.R.C.P. Lond., &c., Physician Extraordinary to H.M. the Queen, Physician in Ordinary to H.R.H. the Prince of Wales, Consulting Physician to St. Mary's Hospital and the London Fever Hospital; and JOHN F. H. BROADBENT, M.A., M.D. Oxon., M.R.C.P. Lond., Medical Registrar to St. Mary's Hospital. Third edition. London: Baillière, Tindall, and Cox. 1900. Pp. 420. Illustrated. Price 12*s.* 6*d.*

ADVANTAGE has been taken of the call for a new edition of this work to bring it fully up to date, and with this view chapters on Acute Affections of the Heart, Endocarditis, Pericarditis and Myocarditis, and on Aneurysm of the Arch of the Aorta have been added. The authors do not profess to give a systematic and complete treatise on each subject or to enter into a discussion regarding the conflicting views which have been entertained on various points of pathology and etiology; their object has been rather to endeavour to place before the reader a clinical picture of each disease and to emphasise the points which are of chief importance in diagnosis and prognosis. Taken from this practical standpoint the work contains a vast amount of information which should prove most useful to the practitioner. Patients are naturally anxious to know what will probably be the result and length of the illness from which they are suffering, and particularly is this the case with any trouble affecting the heart. The sufferer cares but little whether a certain cardiac murmur which the physician hears is congenital or the result of infantile rheumatism, but he has the most supreme interest in trying to ascertain to what the cardiac condition is likely to lead. The chapters on Prognosis are about the best in the book. The style in which they are written is clear and precise and the practitioner having carefully studied them will feel in a position to fully explain to his patients the probable results of the affections of the heart with which they may be unfortunately affected.

The subjects of Hypertrophy and Dilatation of the Heart receive considerable notice and we would especially draw the attention of readers to the chapter which deals with these conditions. The most important indications as to the extent of a valvular lesion are to be gathered from its effects on the walls and cavities of the heart, resulting in hypertrophy of the former and dilatation of the latter. Sir William Broadbent's remarks are the result of careful study and large experience and they will consequently be read with a confidence inspired by their origin.

We are informed in the preface that the chapters on the Inflammatory Affections of the Heart are entirely the work of Dr. John Broadbent. These conditions have been more carefully studied during recent years and are therefore more fully understood than they were formerly, and the author has given a good summary of the advances which have been made. The general style of the work has been maintained and especial attention has been paid to the clinical aspect of the diseases, although their pathology has not been neglected.

The chapter on Angina Pectoris does not seem to have received the careful attention which has been devoted to

other parts of the book. The form of this affection known as "angina vasomotoria" is now generally recognised by most authorities as occurring more frequently than had hitherto been suspected and to be of considerable clinical interest. Only one page, however, is occupied with its consideration in this volume. The differential diagnosis of this variety has been shown to be of great importance and it is a matter of regret that a more lucid description is not given.

The subject of Aneurysm of the Arch of the Aorta, on the other hand, is fully discussed, although the treatment is given rather too briefly and the more modern methods of treatment, such as the injection of substances intended to increase the coagulative power of the blood, are not mentioned.

The Principles and Practice of Modern House Construction. Edited by G. LISTER SUTCLIFFE. In Two Volumes. London and Glasgow: the Gresham Publishing Company. 1899. Vol. I., pp. 503; Vol. II., pp. 512. Price 50*s*.

THIS important work has been issued in two handsome volumes which contain no less than 700 figures in the text as well as a series of separately printed plates. The staff of collaborateurs numbers 17 and includes the names of recognised authorities on sanitary science, medical men, chemists, and architects. "Construction," perhaps, has been dealt with at greater length and in greater detail than any other branch, but the subject is an exceedingly comprehensive one and the whole work opens our eyes to the remarkable number of pure science matters upon which the question of house construction hinges. Most of the contributions are written so as to be understood by the average householder, although it may be said that technicality is more obvious in those sections contributed by architects. There can be little doubt of the value of the volumes as a whole upon the wide field with which they deal. It is not easy to bring a contribution of this kind up to date considering the compilation which it entails. Nevertheless, in it will be found a broad and intelligible exposition of sanitary principles underlying hygienic house construction, and the various contributions are written completely in accordance with modern knowledge.

The general introduction is by Dr. F. W. Andrewes who contributes an interesting historical sketch of the growth of sanitary science. In this task he has been considerably assisted, as he acknowledges, by the writings of Sir John Simon. In these introductory chapters is defined in a clear and interesting manner the position of sanitation at the present time as compared with what it was in the past. Indeed, it is safe to say that attention was only given to this important aspect of public health with the dawn of the Victorian era. When this fact is borne in mind it will be readily understood what enormous and satisfactory progress has been made in the application of the principles of sanitary science. With the growth of knowledge of what constitutes sanitary environment and the application of this knowledge the improvement in the public health has kept corresponding pace. Although sanitary science is not as exact as is desirable in some particulars, especially in regard to the why and wherefore of well-known facts, still sanitarians have been guided correctly by practical experience in the absence of an exact knowledge of the causes of unhealthy conditions. At the present moment, for example, we possess no certain knowledge of the nature of the poisonous action of sewer air, but that sewer air predisposes to an unhealthy condition undermining the natural resistance of the body to unhealthy influences is a clear fact which experience has established. Dr. Andrewes says that it can hardly be supposed that when largely diluted after escaping into a house sewer air can owe its evil properties to its gross chemical composition. "Something more subtle than this must be at work, and it has been suggested that the organic matter present in it may contain an obscure chemical poison, possibly of an alkaloidal nature." We believe that this suggestion had its origin in the editorial columns of THE LANCET and we have seen nothing as yet which is opposed to such a suggestion. While on this subject Dr. Andrewes might with advantage have given a summary of the experiments conducted by the Italian investigator Dr. Alessi who showed that rats when exposed to sewer air were very susceptible to typhoid poisoning, while in the same series of experiments rats that had enjoyed fresh air seemed proof against the invasion of the typhoid bacillus even when it was inoculated subcutaneously. The remarks of Dr. Andrewes on disinfection and the disposal of refuse and other subjects should be of especial interest to those whose work relates to the structural points of houses.

In Section I., which follows the general introduction, Professor Robert Kerr, F.R.I.B.A., discusses the aspects of houses. Here he enters into general considerations, such as site, aspect, light and air, and style of plan. We note with pleasure that the author does not take quite the view of Bacon that "houses are built to live in and not look on," though from the point of view strictly of public health there is no doubt that efficiency of construction is more important than structural beauty. Professor Kerr keeps in view the sanitary requirements as well as the artistic effect. The succeeding article, which is devoted entirely to construction, is contributed by the editor and the information contained therein is of the most valuable kind and is worthy of perusal by all interested in the construction of houses; indeed, we have found that the writer refers to some very recent materials so that some good hints may be derived by architects and builders from this contribution.

The next subject dealt with is that of Water-supply, in Section III., by Mr. Henry Law, M.I.C.E., in which the sources of supply are considered and the best way of tapping them. This involves the important questions of the raising of water and its conveyance. Mr. Law concludes with a chapter on the purification of water in which he gives excellent practical details of the methods employed for the filtration of water and for softening water by well-known processes. Water-supply from the Domestic Point of View is the subject of the next section, by Mr. Henry Clay, and we find here the kind of information that is constantly in requisition and a description of the materials used for the pipes, the nature of joints, cocks, and taps, and the principles underlying the systems of hot-water supply. We are glad to find that Mr. Clay has not omitted to mention the dangers arising from boiler explosions. He fully describes the safety-valves which have been devised to avoid such contingencies and rightly lays stress on the importance of examining these valves from time to time. He concludes this section with a description of a mercury regulator which appears to us to be more convenient and reliable than other devices. The next section (Section V.) relates to household filters and is contributed by Dr. H. Jossé Johnson, who has conducted some excellent original inquiry on the subject. He refers to the Report on Filters and Other Water-purifying Agents by THE LANCET Sanitary Commission of 1867,[1] when of course the methods of testing a filter did not admit of the precision of the present day, bacteriology having now been brought to bear upon the subject. In regard to modern investigation he gives in one instance a wrong reference. The table which he reprints did not appear in THE LANCET, 1894, vol. ii.,

[1] THE LANCET, Jan. 12th (p. 58), March 23rd (p. 371), and July 6th (p. 13), 1867.

p. 1058, but it occurs in the paper communicated by Dr. Sims Woodhead and Dr. Cartwright Wood to the corresponding number of the *British Medical Journal*. We may say that these researches have thrown great light upon the question of domestic filtration. They practically showed that the bulk of domestic filters were worse than useless. Sections VI., VII., and VIII. inclusive relate to sanitary plumbing, sanitary fittings, and drainage. The last section of the volume (Section VIII.) contains an excellent chapter on the flushing, cleansing, and testing of drains.

The second volume opens with a chapter on Sewage Disposal by Mr. Percy Boulnois, in which we find a very fair synopsis of the methods of disposal past and present. The portion on Bacterial Methods might have been written at greater length considering the enormous advances that have recently been made in regard to the bacteriological disposal of sewage. This section is followed by Section X. on Warming, by Mr. E. R. Dolby, which contains a very useful account of proper and improper methods of heating. The author might with advantage have referred to THE LANCET Commission on Gas Heating. Section XI. deals with the same subject except that the warming and cooking methods described are effected by means of the electric current. Following this section is an admirable contribution on ventilation by one of the foremost exponents of the subject, Mr. William Henman, whose name is associated with the plenum system of ventilation introduced at the Birmingham New General Hospital, of which he was the architect. In succeeding sections lighting is dealt with in all its forms, candles, oils, and electricity, by Mr. A. Claremont; while Mr. Henry Clay adds a good account of modern methods of gas-lighting. In this account he refers to the report of THE LANCET Commission in January, 1895, upon the Welsbach burner. His conclusions are correctly based on these results but hardly in grammatical terms, an error which might appear to be due to the original Commission, but this is not the case. Indeed, the word *sic* placed in parenthesis after a verb in the singular which should be in the plural is evidently a query by the editor. Space not permitting even a passing reference to certain other sections connected with house construction we may pass on to chapter iv. of Section XVII. by the editor, on the Improvement of Existing Houses. In this chapter defective plumbing and drainage are dealt with and the editor acknowledges that he has taken advantage "of the valuable report (published in THE LANCET of July 4th, 1896) of THE LANCET Special Commission on the Relative Efficiency and Cost of Plumbers' Work." The permission of the Editors of THE LANCET is also acknowledged in regard to the reproduction of certain plates which are illustrations of three typical houses containing almost as many sanitary defects as possible, with illustrations of the best way of removing these defects. We may state that an addendum to this work of our Commissioners has since appeared in our columns (March 4th, 1899) under the title of "Report of THE LANCET Special Commission on the Water-supply and Disposal of Sewage in Rural Districts," but of course this appeared too recently for useful abstraction in the present edition of the work under notice. The remaining sections refer to Climate and Situation, by Dr. E. F. Willoughby; Stables and Cow-houses, by Mr. F. W. Lockwood; and Sanitary Law, by Mr. A. Wynter Blyth. Mr. Wynter Blyth's contribution appears to be a simple compilation of statutory provisions in regard to the subjects within the province of public health.

This excellent production is one which merits congratulations on all sides. The staff of contributors comprises acknowledged authorities on the many subjects concerned and there are evidences throughout the pages of excellent editing, while the style of the volumes is attractive and very creditable to the publishers. No subject could be of more importance than modern house construction and it is surprising to find on reflection what a number of specific scientific subjects it involves. Hitherto, we believe, no literary work has been devoted exclusively and so comprehensively to the subject as is the one before us, and we are confident that it will be looked upon as the standard of reference.

Practical Gynæcology: a Handbook of the Diseases of Women. By HEYWOOD SMITH, M.A., M.D. Oxon. Second Edition, Revised and Enlarged. London: H. J. Glaisher. 1900. Cr. 8vo. Pp. 230. Price 5*s.* nett.

THIS is the second edition of a book the first edition of which appeared in 1877. After the lapse of so long a period of time as 23 years it may well be questioned whether it is worth while attempting to do anything short of completely re-writing a text-book, and most especially one dealing with a subject such as gynæcology, in which such enormous strides have been made in our knowledge during recent years. Dr. Heywood Smith says in his preface that these great advances have necessitated a thorough supervision of the text. Of this there can be no doubt; it remains to be seen whether or not this has been done to a sufficient extent. The book consists of a summary of the various gynæcological affections based upon the nomenclature of the Royal College of Physicians of London, and under each disease are given its definition, cause, symptoms, signs, diagnosis, prognosis, and treatment. Some of the definitions are good and sufficient, but others suffer from the brevity which is essential in a work of the kind. Thus, the definition of a mole as "a spoilt egg," although qualified by the statement that the life of the ovum is destroyed and that it is expelled as a shapeless mass, hardly conveys a correct idea of the pathology of this condition to the reader. The author lays a good deal of stress upon the results of "attempts at unimpregnated ovum development" as a cause of the formation of ovarian cysts. We are surprised to find that Dr. Heywood Smith apparently still endorses the recommendation of the late Dr. Protheroe Smith to prepare some patients for ovariotomy by a preliminary venesection. Such a practice is hardly likely to benefit a patient before what may be a difficult operation attended with a good deal of hæmorrhage, even if the pulse should be incompressible. There is evidence of want of care in the revision of the book and, upon the whole, the endeavour to bring it up to date cannot be said to have succeeded. No mention is to be found of pyosalpinx in the index, and all that is said about it in the text is "that inflammation of the oviduct may pass into abscess (pyosalpinx)." The term "puerperal fever" has been expunged from the Nomenclature of Diseases of the Royal College of Physicians of London, 1896, and yet both puerperal fever and puerperal septicæmia are described under separate headings as if they were separate and distinct diseases. If more care and trouble had been expended in really bringing the book up to date it might have fulfilled the wish of the author that it should serve as "a refresher for the busy general practitioner," but in its present form we are afraid it will hardly fulfil this function.

UNIVERSITY COLLEGE, BRISTOL.—The Associateship of University College, Bristol, has been conferred on Mr. William Marmaduke Bergin, M.B., L.R.C.P. Lond., M.R.C.S. Eng.

LONDON HOSPITAL MEDICAL COLLEGE. — The prizes and certificates will be distributed to the students and probationers this year on July 19th, at 3.30 P.M., in the library of the college by Mr. Frederick Treves, F.R.C.S. Eng., consulting surgeon to the hospital

THE LANCET.

LONDON: SATURDAY, JUNE 16, 1900.

SUNDAY, June 24th, is the day selected this year for the simultaneous appeal from all the London pulpits on behalf of the medical charities of the great metropolis. For 27 years this annual appeal has been made with results which we have recorded in our special supplements; and to the Supplement for 1900, which we publish to-day, we now refer our readers, begging them one and all to use their utmost influence that the Fund may continue to be the success that it has been; and more, that it may grow with the growing needs of the institutions which it has been designed to assist. We know that the interest of the medical profession in this great Fund is unabated, but we wish that the laymen into whose hands many of the supplements will pass would make some more vigorous attempt to realise that a great responsibility in the matter rests upon them. To us it seems impossible to read, nay, to glance at, the figures relating to the Metropolitan Hospital Sunday Fund, or to consider even superficially the various circumstances which have called that Fund into being, without feeling that every Londoner as a point of honour should tax himself to what point he is able to support the hospitals of London. London grows, but the Metropolitan Hospital Sunday Fund does not grow. The medical profession is hourly engaged in fighting a battle against sickness the burden of which is not properly shared by the citizens on whose behalf it is waged. London is apathetic in face of the needs of her hospitals, and her increase of wealth has not led her in any marked degree to attempt to place the charities to which she owes so much upon a firm financial basis. We do not ask any of our readers to take this for granted. We beg them to listen to the ministers of various denominations who will appeal on Hospital Sunday on behalf of the Fund and who will bear out every word that we say. Be it remembered that the ministers will know whereof they speak. They are fitted to testify to the stress under which the hospitals labour and to the good that they do both from their knowledge of the subject and from their association with the care of the sick that the ministerial office of every religion entails. We are certain that they with one accord will bear us out in saying that the Fund is badly supported and that the subscriptions should realise a much larger total.

Collectors are wanted for the Fund. Many persons only need to have their attention called to the claims of the Metropolitan Hospital Sunday Fund in order to subscribe liberally to it. But many more, for this reason or that, neglect the excellent opportunity of doing good. We beg accordingly to lay upon those who have themselves not forgotten the Fund the task of reminding others, some of whom only require that their duty should be brought before them at the right time and place and perhaps by the right person. A large number of subscribers will be urged to give when they attend Divine worship. The church, chapel, or synagogue with them will be the place, and the minister will be the person, who will persuade them. The Fund is primarily connected with a collection made in Christian places of worship on the first day of the week, but it omits no sect or religious denomination of the Christian or of any other religion from its appeal—just as the hospitals which it benefits exclude no sect or denomination or religion from their wards. There may be some who from the ritual connected with the religion which they profess will not hear the claims of the Fund urged from the pulpit. We ask them nevertheless to give their money and we urge their friends to see that they do not fail to give merely from forgetfulness. Again, there are many of those best qualified to give largely who, for divers reasons satisfactory to themselves, will not be in church, chapel, or other place of worship when the appeal is made. May we urge upon the relatives and friends of the absentees before whom these pages come to constitute themselves collectors for the Fund? It may be that some will not attend public worship or any place where public collection is made because they are ill; let them not therefore forget the hospitals, but let them rather be reminded where the skill was gained which they have called in to their aid. Let them remember the poor and think of the homes in which those poor live, of the risks to which they are exposed. Let them think in the light of their own pain of what the fate of these would be if they had no hospital to turn to in their need. It may be, on the other hand, that healthy exercise claims the absentees on the one day of the week which they can devote to it. Surely these of all others should not be allowed to forget. To the golfer and the cyclist no one grudges less than we do his game or his ride—the medical profession is no enemy to the habit of healthy exercise that is one of the most marked characteristics of our people—but we desire to recall to the memory of the strong and vigorous man as he hurries in pursuit of fresh air and pleasure that it is for the sick and maimed that we appeal on Hospital Sunday, and we ask him to tax himself a small portion of the amount that he annually spends in healthy enjoyment for the sake of those whose chance of health depends on the generosity of their fellow-men. At all events, let him not fail to give because he forgets. He should not forget, and if he does forget he should be reminded. And in expressing a hope that all who might not otherwise remember the Hospital Sunday Fund will be reminded of it by those to whose attention it is brought in the course of their Sunday worship we are appealing largely to women for coöperation and assistance. We do not wish to initiate "snowballs" of behalf of the Hospital Sunday Fund, but we feel sure that if every woman who may read our supplement were to remind all her friends and all whom she can influence how urgent the need is that they should contribute, and were to enlist all in her power to carry on the task of similarly reminding others, the Fund would be materially aided by the work so done.

The people of London, to whom primarily, though not wholly, we look for a response to our appeal, have done their

share nobly in subscribing to the various funds incident upon the South African war, and have also given largely to the Indian famine fund. Those interested in the management of the Metropolitan Hospital Sunday Fund cannot but feel a little apprehensive lest the fount of generosity, so freely drawn upon during the last eight months, should have begun to run dry before the hospitals have received the draught that to no small extent stands between them and starvation. Surely their anxiety is misplaced. We believe that everyone who has followed the events of the South African war—and who has not done his best to understand a matter of such national import?—will admit that the history furnishes forcible arguments for the maintenance of the hospitals of the country in a condition of complete efficiency. The praise which the Royal Army Medical Corps have won for themselves in the campaign, now it is hoped nearing its closing stage, by their skill, by their courage, and by their powers of organisation, is largely due to the training, scientific and disciplinary, received by the officers when studying at the big voluntary hospitals of the United Kingdom, and prominent among these hospitals are the hospitals of the metropolis. We trust that on Sunday, June 24th, congregations of London will listen to the appeal of their ministers on behalf of the Metropolitan Hospital Sunday Fund with a special predisposition to support to the best of their ability these noble charities, and we also trust that all who have an opportunity will press upon their friends the necessity of subscribing.

THE disciplinary action of the General Medical Council in theory is exercised in the November session, but in practice it is called for quite as much in the May session, for it would be unreasonable to keep accused persons in suspense for six months after the first meeting of the Council at which the charges could be investigated. The penal cases which occupied the attention of the Council at its recent meeting were nine in number and resulted in the removal of no less than five practitioners from the Registers—three from the Medical Register and two from the official roll of the dentists. It is always well to consider the offences for which the grave penalty of removal from the Register is inflicted, for they vary from session to session. We have hitherto been accustomed to regard "covering" as the commonest offence warranting suspension from medical practice. But it is noticeable that this was not the offence alleged against any one of the five practitioners whose names have just been erased. The offences were, respectively, (1) drunkenness, disorderly conduct on one occasion and on another assaulting and beating a female; (2) association with an Anglo-Australian institute which advertised publicly systems of medical treatment, the advertisements being in themselves discreditable to a British registered medical practitioner; (3) systematically seeking to attract professional practice by the issue of public advertisements advertising as a graduate in dental surgery in America without having visited America or undergoing any examination; (4) habitually publishing advertisements as R.D.S.E., thus implying connexion with one of the Royal Colleges; and (5) practising a fraud upon a gentleman by making out to him a bill for professional attendance on his wife, the attendance never having been given. We propose to consider some of the circumstances of these cases, though the names of those convicted of unprofessional conduct need not be given.

The offence of drunkenness may not appear to some a professional offence, and they may think it one for which a man is sufficiently punished by the magistrate in a police-court. For a single occasion that view would doubtless generally hold. But it is otherwise when the member of a responsible profession appears more than once in the police-court on such a charge, and especially so if at the end of six months he appears again before the General Medical Council without any obvious improvement in character and without adducing testimony from others to such improvement. It is clear that such a person should be removed from the Register of medical practitioners both for the advantage of the public and the good repute of the profession. Drunkenness is an offence in any man against the rules of society, but in a medical man it is to be severely condemned, because it may lead to terrible disasters in which the sick are the sufferers. We know the temptations offered by the irregular hours and hard work of practice, especially in country districts. But against these temptations every practitioner should be on his guard, and it is sad that even two gentlemen out of 34,000 should have to appear to answer such a charge. In the second case of the sort investigated the Council gave the practitioner time to consider and amend his ways. In the next three cases the offence consisted in advertising in such a manner as to constitute "infamous conduct in a professional respect." Here again the temptations are obvious—as obvious as those to drunkenness and as vulgar. What is and what is not legitimate or unavoidable publicity must often be a matter of doubt, but we do not think that anyone will accuse the General Medical Council of having acted, as a rule, with harshness. So far from straining to bring home to members of the profession the offence of advertising the tendency of the Council has been to be blind to the *lâches* of regular sinners. In the cases which it has now punished with erasure from the Register any other decision would have been ridiculous. It is significant that two of the offenders are dentists. Dentists hitherto have been allowed a licence with regard to advertisement much greater than that permitted to medical practitioners. But after seven years' notice the Council has by two erasures signified that this licence must not be counted upon any longer. Dentists who wish to retain their places in the Register will do well to restrict their advertisements to the mere announcement of their addresses or, better, to abstain from advertising. Then they will certainly be safe. The last case, that of the practitioner whose name was erased for making out a bill to a husband for an imaginary medical attendance on his wife, is unique. The offender's counsel argued that this was not infamous conduct in a professional respect because it was not done towards an actual patient or in the actual pursuit of professional work, but the Council took a different view, and it is not likely that its decision will be called in question.

In some respects the most interesting case brought before

the General Medical Council was that of the medical man who was summoned for employing an unqualified assistant whom, it was alleged, he permitted to attend on, and administer relief to, patients and carry on practice as if he were duly qualified. The complaint was brought by the Gateshead Medical Association and was supported by the Medical Defence Union. The interest in the case was complicated by the fact that differences existed between the accused and the other medical practitioners of his neighbourhood with reference to the rates of payment in certain medical clubs. An attempt was made to raise these rates and the medical man against whom the charge of "covering" was brought took the clubs at the old rate in reply to advertisement for a medical man. For a time he had a qualified assistant, but when the assistant left he could not get another with a qualification But he obtained assistance from an unqualified man, whom he said he regarded as a "pupil." The Council found the charge of "covering" proved, as it could not look on the assistant as a mere "pupil." It did not, however, proceed at once to remove the offender's name from the Register. The very delicate circumstances in which the case against him arose no doubt made the Council more careful in the exercise of its power, and its caution was wise. It would be a most unfortunate thing if the pena powers of the Council were ever suspected of being exercised in response to professional misunderstandings. The Gateshead Medical Association was well-advised in bringing the case before the Council and it is probable that the offence will cease.

One circumstance should be noted before closing this brief commentary upon the disciplinary action of the General Medical Council. In all the cases where the offender's name was removed from the Register the Council acted upon its own initiative. There had been no previous action by any of the medical bodies whose diplomas were held by the accused persons, a circumstance which, considering the glaring nature of some of the offences, is not a little surprising.

IF there is one class of human beings more than another whose infirmity is to be considered with reverence and apart from all considerations of mere gain it is the insane, while those whose condition borders on insanity are almost as much to be commiserated. And in either case where the social position is one of poverty the sadness is much enhanced. It is therefore most humiliating to learn that in one of the great central parishes of London, where we might have expected to find enlightened administration, there has been brought to light a system of dealing with the insane which is discreditable alike to the guardians, to their officers, and, we are sorry to say, to certain members of the medical profession.

On June 7th a report was presented to the St. Pancras Board of Guardians by Mr. F. PURCHASE, chairman of the Relief Committee, which made certain very definite allegations against the relieving officers in connexion with the certification and admission of lunatics to licensed houses. Mr. PURCHASE said that of the guinea fee received by some of the medical men called in by the justices to assist in the examination of persons of unsound mind the relieving officers got 5*s.* and varying sums of 1*s.* and upwards from other medical men. The relieving officers admitted that this was the case, while it appeared that those medical men who had refused to give presents had been boycotted and received no cases. The report also stated that nearly all the pauper lunatics from St. Pancras had been sent to two private asylums to which the Board paid something over £12,000 a year. These two houses, Hoxton House and Bethnal House, had, it would seem, charged the St. Pancras Board of Guardians 2 guineas per patient per week, while other parishes were only charged 19*s.* 3*d.* per patient; so that St. Pancras had been paying more than four times as much as would have been the case had the patients been sent to the county asylum, where the charge was 9*s.* 11*d.* per patient. The relieving officers admitted receiving sums varying from £2 to 10*s.* for each patient from the officials of these two private asylums The report also called attention to the remarkable fact that St. Pancras pauper lunatics numbered 1600, while in Islington, a larger parish, the number was only just over 1000.

It is impossible to comment without indignation on a course of behaviour so wrong in principle, so cruel to the patients, and so unjust to the ratepayers; while it is equally impossible to offer any excuse for the medical men who, by the confession of the relieving officers, have allowed themselves to be involved in it. We can only hope that a flat contradiction may be forthcoming from some at least of them. It is amazing to think of the extent to which bribery has been carried out and the tardy exposure is not creditable to the vigilance of the board of guardians, although it must be admitted that when Mr. PURCHASE'S committee spoke it spoke with no uncertain voice. We are told plainly by Mr. PURCHASE that nearly all the pauper lunatics from St. Pancras were sent to two private lunatic asylums at improperly high prices. The proprietors of these asylums have, we presume, some explanation to offer, and we would urge them to reply to the charges brought against them, and widely circulated by the press, without delay. The hoary nature of the abuses that have just been brought to light cannot be alleged in extenuation. The scandals have confessedly been going on for 30 years and it is conceivable that the present generation of officers have learnt to throw the responsibility on their predecessors. If this is the only excuse we may say at once that it is a totally inadequate one. Things that were culpable 30 years ago are more so now. Otherwise we should be going backward in public and municipal morality instead of forward. That medical men should have been implicated in such grave charges, even though their share is only passive acquiescence, is lamentable, but we withhold censure till it is obvious that the time for explanation has gone by. In the meantime we say that the charges call for reply. The remuneration of professional work among the poorer classes is, we know, inadequate and the system of gratuitous advice is so demoralisingly extensive as to make members of our profession less independent than they should be, but these facts would not constitute excuses for the condition of things that is alleged by the Relief

Committee of the St. Pancras Guardians to prevail in St. Pancras. Guardians everywhere must look into the matter. The scandal calls for a thorough examination into the methods under which pauper lunatics are certified. A very limited experience of pauper lunacy is enough to show that much of it is not grave or organic, so that there is every reason why all cases should be investigated by persons above suspicion and should be intrusted to the treatment of independent and disinterested practitioners.

Annotations.

"Ne quid nimis."

THE ALDERSHOT FIELD DAY.

WHATEVER might have been the opinion entertained of the late military operations at Aldershot from a military or spectacular point of view we think that the results from a humanitarian or medical one must be regarded as lamentable. Monday, June 11th, was, as everybody will recollect, an exceptionally hot and oppressive day. The thermometer, sheltered from the direct rays of the sun, rose to 89° F. and exposed to them to 116°. The troops, numbering nearly 30,000 in all, were under arms for eight hours; they were improperly clad for such hot weather and insufficiently fed before starting for an unusually trying field day which, in point of fact, should not have been undertaken under the circumstances. The men fell out in all directions on the homeward march in consequence of the heat, fatigue, and distress which they had undergone; four of them died from heat-stroke and a considerable number had to be admitted into hospital—all suffering more or less, and some dangerously, from heat-exhaustion. Such are the facts briefly stated, and it seems surprising, with all the past experience which the military authorities have had of field days, marches, and manœuvres in and around Aldershot, that the arrangements for such occasions should not be about as perfect as they can be practically made. No one could, of course, have predicted when the day was fixed upon that it would turn out such an exceptionally hot and unfavourable one for the purpose. It is easy to be wise after the event, and had these untoward occurrences been foreseen the field day would, no doubt, even at the last moment, have been postponed or the time occupied by the military operations would have been curtailed. But there seems to be still a good deal lacking in the system and method adopted on such occasions. Why should our soldiers be exposed to any needless risk of life, distress, and suffering which can be avoided by common-sense and hygienic precautions, such as suitable clothing, protection of the head by light helmets of a suitable kind, the provision of a good meal before starting, with light refreshment at halting-places, and the plentiful supply of watercarts all along the route? It seems to us that there might be some standing regulations specially framed for hot-weather marching and field days such as could be followed on all occasions of this kind. We know, of course, the argument so frequently put forward, that soldiers have to undertake all this and much more in time of war, but it seems to be forgotten that in a campaign they have usually gone through a course of preparatory training beforehand, that they are also properly clad and equipped for the work in hand, and that they are stimulated by military ardour as well as by the fact that they are acting under some paramount or recognised military necessity. A wise commander does not, if he can help it, land his troops or his horses from shipboard in a hot climate and at once start them, whilst still "soft," on a long and trying march.

THE METROPOLITAN HOSPITAL SUNDAY FUND: APPEAL IN THE CITY.

THE Rev. Harry Jones, Rector of St. Vedast, Foster-lane, Cheapside, E.C., who in many practical ways has shown his interest in the Metropolitan Hospital Sunday Fund, has had printed a circular letter for use by himself in place of the circular letter issued by the Metropolitan Hospital Fund for the purpose of reaching those people who are absent from church on Hospital Sunday. The letter is as follows:

DEAR ——,—If you should be absent from town, or be present in no place of worship on or near Sunday, the 24th June, forgive me for reminding you that aid will be then asked throughout the metropolis towards the support of its great hospitals. This appeal has no exclusive connexion with church or chapel, but relies upon the goodwill of those who appreciate hospitals as schools of medicine and centres of cure, especially in case of accidents, when ready help is needed by any sufferer, and most often by those who are poor. Should you then be disposed to join in a corporate effort (all the more encouraging because it is simultaneous) to meet wants supplied by hospitals, will you send me something, however small the sum, which will be acknowledged promptly, and paid into the Lord Mayor's Hospital Sunday Fund at the Mansion House?

In the City, where few influential people attend a church on Sunday, except St. Paul's Cathedral, the letter should prove most useful to ministers. We understand that the letters are printed by Messrs. Collingridge, 148, Aldersgate-street (the office of the *City Press*), who keep the type "standing."

CEREBRAL AND MENTAL DEGENERATIONS ATTRIBUTABLE TO THE USE OF OPIUM IN INFANCY.

DR. T. D. CROTHERS, superintendent of the Walnut Lodge Hospital at Hartford, Connecticut, U.S.A., has an interesting report in the *Journal of the American Medical Association*, May 19th, 1900, of cases illustrating the cerebral and mental degenerations observable in adult life owing to the injudicious use of opium in childhood. The danger of opium as a remedy in infancy has only recently been recognised. The widespread use of proprietary medicines containing opium as soothing syrups for children has resulted in injuries observed later in life which could be distinctly traced to the deleterious effects of the opium. In children, as in adults, the same initial exhilaration (or excitement) followed by depression results from the use of opium, and in children or adults of fine nervous organisation a smaller dose produces the same effect, which in those of coarser organisation can only be produced by a larger dose. The power of resistance to the drug is very small in the child and the frequent use of the drug produces characteristic cerebral and mental degenerations. Opium given in convulsions, intestinal troubles, insomnia, and nervous irritations may often give temporary relief, but if its use be continued it may produce lasting mischief. A lessened vigour of intelligence with a weakness of volitional power amounting even to stupor, may result, together with loss of self-control and a proneness to morbid impulses. Disorders of digestion are also a common result. The following clinical accounts are instructive and teach important lessons which should not be disregarded. In a family of four children of healthy parentage, one, a boy, was dull, passionate, and of low intellectual grade. He would over-eat and drink to excess anything he fancied. He was stupid and obstinate and at times excessively irritable. "No one in the family resembled him in any way, but all were healthy and vigorous in mind and body. When one year old he had a convulsion

and was given opium daily for over a year, then at longer intervals, and finally it was abandoned. The parents noticed it was affecting him at the time, changing his mind and habits, and would not permit its use again." Here was an example of retarded brain growth with perversion of mental function, which in later life would probably tend to some form of mental disease or dementia. In a second healthy family one son became an impulsive inebriate at the age of 18 years. The other children in the same surroundings and conditions of living were temperate and well. During infancy this boy was treated with morphia for intestinal troubles. At one time it was thus taken for nearly a year by advice of a physician. "He was dull and stupid much of the time this was taken, and its use as a medicine was continued for years after." The boy soon after the age of puberty began to drink spirits to excess and was now a periodic inebriate. Another interesting case was that of two children of a family, one a young woman who at the age of 24 years suddenly became addicted to opium and alcoholic excess and showed much mental disturbance. "During infancy she was nursed by a Hindoo woman, and was noted for her stupor and tendency to sleep. In childhood she was extremely nervous and suffered from many hysterical affections. ..... Her brother, born two years later, was nursed by the same woman, and was noted for his somnolence and general stupor during this time. Later it was found that the nurse was an opium taker, and that both children had been under the influence of opium from nursing. The boy grew up exceedingly nervous and irritable. At one time he drank to excess and was a gambler. He was changeable and notional, became a clergyman, then a physician, and finally a speculator. He is now an opium taker and neurasthenic, an invalid not 30 years of age." Two other children of this family, one born before this Hindoo woman was taken as nurse and the other after she was discharged, were strong and healthy and free from any peculiarities, mental or bodily. Other interesting cases are recorded, and Dr. Crothers concludes as follows: "The ignorant mother who uses soothing syrups freely to suppress the irritation of the infant is not the only offender. The routine and often thoughtless physician who uses opium freely in infantile prescriptions is responsible in many cases for the wrecks of later life."

THE TRANSPORTATION OF DEAD BODIES.

AMONG the Acts of the Legislature of New Jersey, U.S.A., passed during its latest session we note one which is a good example of the practical interest in sanitary questions displayed by our cousins across the Atlantic, and which, moreover, suggests a possible useful addition to our own public health legislation. It is "an Act concerning the transportation of dead human bodies across or within" the State of New Jersey, and it deals with dead bodies in two classes. In the first place, it forbids any undertaker or other person to consign, or any railroad or common carrier to convey, across or within the State any human body dead from small-pox, Asiatic cholera, yellow fever, typhus fever, or bubonic plague, except in a hermetically sealed casket and except a license for such transportation be first obtained in writing from the board of health of the State or from one of its officers or inspectors. In the second place it forbids the transportation within the State of New Jersey of bodies dead from other causes than those enumerated, except under conditions which include signed certificates in duplicate from the physician who has attended the deceased in his last illness or from "some other practising physician in good and regular standing." This certificate must fully and minutely identify the body and set out the cause of death and further certificates from the undertaker charged with removing it must state numerous other particulars with regard to its removal. If these formalities are duly complied with a permit for the transportation of the body will be issued. In England the need for such precautions does not arise so often as on a continent where a body may be brought home for interment from a State within or without the Union over thousands of miles of railway, and possibly in tropical heat, while the difficulty thrown by continental legislatures in the way of transporting dead bodies to a great extent prevents their frequent arrival on our shores from abroad. It does not, however, follow that no system should be observed in such cases or that no danger may arise which our Public Health Acts ought to be competent to prevent. Our Acts, as far as they treat of burial, are chiefly concerned with the procedure in cases where the relatives of the deceased will not do their duty. A body dead from an infectious disease may not, for example, be left uninterred for more than 48 hours except in a mortuary or room not used for living or working in, and there are legal penalties for conveying such a body in a public conveyance without notifying the cause of death to the owner of the conveyance. We know of no direct legislative enactment that systematically either prevents or materially hinders the possible transportation of bodies under conditions highly dangerous to the public should relatives capable of paying for their conveyance desire to inter them at a distance from the place of death and should those undertaking the duty of removal and interment be careless or incompetent. We note with interest the recognition in the New Jersey Act of the "practising physician in good and regular standing."

THE MANCHESTER AND SALFORD HOSPITALS INQUIRY ASSOCIATION.

TOWARDS the end of the year 1897 the Manchester Medical Guild through its council issued a circular to medical practitioners in Manchester and the neighbourhood upon the subjects of hospital reform and medical aid. With regard to the first subject the circular pointed out that a joint committee representative of the medical charities and medical societies of Manchester and Salford had been appointed to make inquiries.[1] The committee in question has just issued its report with its findings and recommendations which are as follows:—

The Association find:—I. That a considerable amount of abuse of hospital charity exists—i.e., that persons receive the service of hospitals who are not proper subjects for charitable relief. II. That the following appear to be the principal causes of this abuse:—(*a*) the insufficiency of the means taken to investigate the circumstances of patients applying for relief; (*b*) the necessity under present conditions for hospitals to show a large return of work done, as estimated by the number of patients and consultations; (*c*) the tendency of hospitals during recent years to accept trivial cases as suitable subjects for continuous treatment; (*d*) the custom at some special hospitals of treating cases that do not strictly come within the recognised scope of their work.

The sub-committee therefore strongly recommend:—That with a view to terminating the abuses which undoubtedly exist a conference of representatives from all the hospitals of Manchester and Salford be held, with authority either to create a United Hospitals Board for Manchester and Salford or to deal specially with the causes of hospital abuse, as set out in this Report and to discuss the acceptance of contributions by patients.

The most important of these causes are undoubtedly (*a*) and (*b*). Advertisement is the physical life and the spiritual death of nearly every department of the modern body politic. That is to say, everything is run with an idea of making it pay instead of, as should be the case, giving the best work. The ideal is not always attained, but whether it is building a

[1] THE LANCET, Dec. 11th, 1897, p. 1551.

church or keeping a hospital going there is always the fear of the subscribers before the eyes of the responsible managers. In the building it is made a *sine quâ non* that it must be finished by such a date, while the decorations are handed over to a firm to complete at a fixed sum, instead of, as formerly, various artists being employed to carve or paint different portions at their ease. The modern hospital, too, has to issue reports; it is expected by the subscribers to show a good record not so much in quality as in quantity. Let an impartial observer look at the reports of any of the London unendowed hospitals and he will see what we mean. "Funds are urgently needed to meet the ever-increasing work; the patients come to us from all parts of the kingdom; the out-patient department is far too small to treat the crowds which daily flock to us for relief," and so on. It is easy to point out faults, but the suggesting of a remedy is by no means easy and we shall be glad to see at what conclusions the suggested conference will arrive. A central hospital board may succeed in Manchester but in London the subject bristles with difficulties.

CORTICAL HYPERÆSTHESIA IN ACUTE ALCOHOLISM.

A LENGTHY paper with accounts of cases illustrating the above condition has been published in the *Archives de Neurologie*, May, 1900, by P. Cololian and A. Rodiet of Magnan's Clinic. Cortical (cerebral) hyperæsthesia is manifested in its most marked form during the course of acute alcoholism. In such patients it is possible by external excitation to call up hallucinations in one or other of the sensory spheres, results due to the cortical hyperæsthesia which is present. Lipmann was one of the first to note this hyperæsthesia—e.g., as shown by the easy induction of visual hallucinations after pressure on the eyeballs. Krafft-Ebing has also shown that merely closing the eyes will suffice to make visual hallucinations come forth. Magnan has noted that taps on the skin can give rise to sensations of biting or of the sting of an insect and may also indirectly evoke hallucinations of sight, hearing, or smell in some subjects. Blowing into the external auditory meatus will give rise to auditory hallucinations.[1] Mierzejewski[2] observed that at the onset of delirium tremens there exists such an excitation of the visual centre that impressions of colour leave a long-persistent trace, and hallucinations occurring at such moments take the same colour. He observed in an alcoholic subject that tapping of the skin with a mallet provoked auditory hallucinations in the form of voices uttering insults. In one of his theses Cololian has recorded instances of persecutory delusions arising from simple hallucinations.[3] Stimulating the tongue with a piece of paper rolled to a point after closing the patient's eyes provoked intense illusions of taste, with grimaces of disgust. One patient said he tasted sulphate of soda or quinine and made a horrid grimace, another said it was absinthe, a third said it was sugar, while a fourth experienced merely an agreeable taste which he could not define. The diagnosis of such cortical hyperæsthesia is of great practical importance for it occurs before the actual onset of the symptoms of agitation, tremor, and acute cerebral excitement of delirium tremens, and it is possible by immediate treatment to prevent or to mitigate the threatened attack. Of the several cases recorded in the paper by Cololian and Rodiet the following may be taken as a typical and instructive one. A man, aged 32 years, a bath attendant, was admitted to the infirmary of the police depôt at Paris on June 13th, 1899. He had never been arrested before. His family history was as follows. His maternal grandfather was an alcoholic, his father was a sober man and was separated from his wife who drank wine and absinthe and who spent most of her money (which she had inherited) in drink and in dissipation. There were no children of the marriage except the patient. His personal history was as follows. He had had convulsions during his youth, and typhoid fever (lasting two months) at the age of 12 years. At the age of 18 years the patient drank to excess. His habitual drinking for 14 years thereafter was a small glass of "marc" on rising in the morning, white wine before breakfast, about a litre of red wine at each meal, and absinthe before dinner. After some time he had an accident and suffered from nervousness, and on medical advice he gave up taking absinthe to substitute for it almost immediately, however, a bitter liquor ("picon"). Soon after this symptoms of alcoholism appeared—viz., insomnia with nocturnal hallucinations, tremblings of the hands, and cramps of the calves. At the beginning of 1898 he was seized in the middle of the night with an attack of delirium tremens, and more recently, and before admission to the infirmary, he had a second attack. The patient had been married about a year. Before and during the first few days of his marriage he accused his wife of indifference, coolness, and deceit towards him with the connivance of her mother. For three months he appeared sad and depressed and spoke of shooting himself to put himself out of *ennui*. On admission to the infirmary he appeared red and flushed, with brilliant eyes and a face covered with sweat. There were tremors all over the body, the pupils were equal, and there was no speech disturbance. The pulse was rapid, and the respirations were normal. There was hyperæsthesia of the skin at the neck and on the chest, at the soles of the feet, and on the flexor surfaces of the fore-arms. "In all these hyperæsthetic areas the least rubbing produced agitation and contortions of the body with movements of defence, and the patient experienced actual pain." Tapping produced similar effects, whereas pinching had less effect. By Lipmann's method it was easy to provoke definite visual hallucinations of quivering flashes of light, sparks, and flames. Buzzings and roaring sounds were induced by simple suggestion or blowing on the ears. Touching the tongue with paper induced tastes of "powders and of absinthe" so strong and nauseous that he attempted to vomit. Smell was normal. The cortical hyperæsthesia with its hallucinatory tendency subsided and a gradually developing melancholia succeeded. He was transferred to an asylum, his bad hereditary antecedents making the prognosis unfavourable.

[1] Leçons Cliniques, 1897, p. 207
[2] Archives Slaves de Biologie, March, 1886.
[3] Les Alcooliques Persécutés, Thèse de Paris, 1897.

NON-COMPLIANCE WITH ISOLATION LAWS.

IN order to protect the members of the general community from contracting certain of the infectious diseases laws have been enacted which direct that all persons suffering from these diseases shall be isolated so as to prevent them from spreading the infection. When this cannot be done in private houses hospitals are provided by the authorities in which the necessary isolation can be carried out. As a rule there is but little difficulty in inducing the patients or their friends (in the case of those in charge of children) to conform to these laws, but occasionally ignorance or stupidity compel force to be used. An instance of this kind recently came before the Newmarket Petty Sessions. A man and his wife, who did not appear, were charged with wilfully exposing their daughter while she was suffering from scarlet fever. The evidence showed that the child was conveyed a distance of 10 miles in a cab hired at a posting establishment. On being told to keep her daughter carefully isolated the female defendant became very abusive. Subsequently the child was found in the public streets, and the mother being again

remonstrated with said she did not care about the law and should take or send her child just where she liked. It was also proved that the child had been sent to shops and allowed to play in the streets with other children, and another case of scarlet fever had already been reported. Mr. C. F. Gray, M.R.C.S. Eng., one of the magistrates, most rightly said that the case was a very serious one as the child would be for some time in an infectious state. A fine of £2 10*s.* with £1 8*s.* 6*d.* costs was imposed. Unfortunately, since the proceedings had been instituted the parents with the child had left the town, thus still further running the risk of spreading contagion. It is exceedingly difficult to teach such persons as the defendants in the above case that laws are made not for one but for the many. Isolation of persons suffering from infectious diseases is not designed for the sole benefit of the patients but for the protection of the public. The community must be guarded from the acts of such wilful persons in the same way as from those of criminals. It is a crime wilfully to allow a child suffering from scarlet fever to play with other children; many deaths may be the result, and the law consequently deals sternly with such offenders.

ENTERIC FEVER IN SOUTH AFRICA.

THE lists of casualties which appear daily in the papers demonstrate only too plainly that we have not yet solved the problem of protecting large bodies of troops from the ravages of such diseases as enteric fever and dysentery. Much has been done in prophylactic measures against the former but very much more remains to be done. One of the greatest difficulties which confront the medical officers is to induce the men only to drink water which has been rendered as pure as possible by boiling or filtering. After a long march the average soldier will run any risk to obtain a draught of water, however bad, and the consequences of such action were seen after the march to Bloemfontein when the men partook freely of the water of the Modder which was defiled by the dead bodies of men and beasts. One of the main interests attaching to the medical aspects of this campaign will be to ascertain the results of the inoculation against enteric fever which was practised upon many thousands of the officers and men. We have been informed that measures have been taken to ensure careful records being kept as to the occurrence of enteric fever amongst the inoculated and the uninoculated, but it will be some time before such statistics can be carefully formulated and the value of such inoculation estimated.

PNEUMOCOCCIC OSTEO-ARTHRITIS.

IT is curious that pneumococcic arthritis which is a recognised, though rare, affection in France appears never to have been observed in this country. At the meeting of the Société Médicale des Hôpitaux of Paris on May 18th M. Ch. Fernet and M. Lacapère read notes of a case recently under their observation. A strong man of alcoholic habits, aged 47 years, had an attack of pneumonia which commenced on Jan. 6th. The crisis occurred on the seventh or eighth day. He entered hospital on Jan. 13th. Soon after his admission traces of the pneumonia—bronchial breathing and sub-crepitant râles in the lower lobe of the left lung—were found. Two or three days before the patient was admitted arthritis of the right wrist appeared. It was characterised by swelling which was rather marked on the dorsal aspect and which was accompanied by slight redness and pain. On Jan. 24th exploratory puncture gave exit to several drops of a liquid as clear as water which was found on bacteriological examination to contain the pneumococcus. On Feb. 6th the patient had completely recovered from the pulmonary disease, but there were still engorgement of the wrist and slight œdema of the back of the hand. The wrist was then immobilised on a splint and slight pressure was applied by means of wadding. On Feb. 14th the swelling had diminished, but fluctuation was still evident and lateral movements of the wrist were accompanied by crackling. On March 2nd the swelling had further diminished and the pain had disappeared. On March 22nd the wrist was still swollen and the cellular tissue seemed to be infiltrated. The axis of the hand was deflected outwards as if the radius was eroded at its extremity and the joint crackled on passive movement. Radiography showed on the sound side the bones of the forearm and the carpus clearly separated; on the diseased side the wrist was represented by a greyish mass, the ends of the bones of the forearm seemed to be in contact with the carpus, and the extremity of the radius was eroded and enlarged. There were thus evidently adhesions between the radius and ulna and the carpus. The case was one of pneumococcic periarthritis similar to two cases already reported to the society.[1] The lesions shown by the radiograph corresponded to those previously observed at a necropsy in another case of the disease. A similar rapid course, early erosion of the bones, and formation of adhesions have been observed in all cases. Ankylosis seems to be the natural termination. Pneumococcic osteo-arthritis is thus a special type of arthritis which is clearly distinct from pneumococcic synovitis.

COUNTY OF DURHAM SOCIETY FOR THE PREVENTION AND CURE OF CONSUMPTION.

THE above society has just opened its new sanatorium. The building is Horne Hall, at Stanhope, which stands in two and a half acres of garden, and the first instalment of patients entered on May 15th. At present there is only accommodation for 12 patients, but in the course of the summer it is intended to increase the number of beds to 20 by adding more bedrooms. The sanatorium will be maintained—(1) by ordinary subscriptions which may be allotted for the benefit of patients from particular districts or works; (2) by workmen's subscriptions, each man paying 3*d.* per quarter, and bodies of workmen subscribing regularly shall have a first claim on the beds to the full amount of their total subscriptions—e.g., if the total sum of their subscriptions amounts to half the cost of maintainence, half of the beds will be at their disposal without further payment; (3) by weekly payments by or on behalf of patients who do not belong to bodies of regularly subscribing workmen; and (4) by income from investments. There is to be a resident medical officer, who must be registered according to the Medical Acts, who shall devote all his time to the welfare of the inmates of the sanatorium and shall have his meals with them. He may have 21 days' holiday in the course of the year at times to be approved by the committee, and nothing is said about his getting any salary, although we suppose he is to have one.

URTICARIA HÆMORRHAGICA.

IN the *Intercolonial Journal of Australasia* of April 20th Mr. C. S. Hawkes has published a case which is of interest both on account of the rarity of the condition present—hæmorrhagic urticaria—and the medico-legal question which might have arisen. A boy, aged 21 months, was let fall by his nurse. He was supposed to have struck the back of his head, but the accident appeared to have been a slight one and no notice was taken of it at the time. Next morning there was a somewhat tense swelling about two inches in diameter on the right side of the back of the neck, reaching up to the level of the occiput, with dark bluish discolouration in the centre as from a bruise. There were also two bluish marks "like bruises"

[1] See THE LANCET, Dec. 11th, 1897, p. 1548.

over the left lower ribs. In the afternoon the cervical swelling was tense and painful, and over the body were many typical urticarial wheals varying in size from a quarter of an inch to two inches in diameter. All the larger ones showed deep purplish discolouration, and there were some bluish marks on the skin, evidently where wheals had disappeared. Itching was considerable. On the first day the wheals were confined to the trunk; on the second day they spread down the arms and hands; on the third day they were thickly distributed over the trunk, legs, arms, and face, and the eyelids were so swollen that they could not be opened. The hæmorrhages were chiefly confined to the larger wheals, which appeared in successive crops. In 24 hours they began to turn from a dark bluish purple to a brown colour. They had disappeared by the fourth or fifth day. After the fifth day only ordinary wheals appeared. Two days later a most severe attack of ordinary urticaria occurred. At its height there were attacks of dyspnœa with sonorous and cooing rhonchi, which passed off in from a quarter to half an hour. For a few days the cry was very hoarse and there was evidently sufficient laryngeal swelling to cause some inspiratory retraction of the chest. As the urticaria disappeared bronchopneumonia supervened, which was followed by whooping-cough. During the hæmorrhagic period examination of the blood showed decided leucocytosis. It is to be regretted that further details are not given of this highly interesting case. Mr. Hawkes appears to consider that the injury had no relation to the eruption for he does not even discuss the question. However, the large cervical swelling seems probably to have been due to the fall, especially as it differed so much from the other cutaneous hæmorrhages. The facts may be regarded as evidence of the hæmorrhagic tendencies of the patient.

THE CATARRH PRODUCED BY A 2 PER CENT SOLUTION OF SILVER NITRATE IN THE EYES OF NEWLY-BORN CHILDREN.

IT must have happened to many practitioners who follow Credé's teaching and introduce one or two drops of a 2 per cent. solution of silver nitrate into the eyes of newly-born children to find that the application sets up a good deal of catarrhal conjunctivitis. The question as to whether the occurrence of such an inflammatory reaction is the usual result of the treatment or not has aroused a considerable amount of controversy. Professor Leopold attributes the catarrh to a faulty technique; other authorities hold that it is the usual sequel and consider it a serious drawback to the treatment. With a view to settling the question Dr. H. Cramer[1] has investigated the effect of a 2 per cent. solution of silver nitrate upon the eyes of 300 newly-born children. One drop of the solution is placed in each eye while the child is lying upon the back. The baby is then rolled over on to either side alternately and by the successive opening and shutting of the lids the lotion is spread all over the conjunctival sac. The eyelids and the surrounding parts are then carefully wiped dry with cottonwool. In all the cases the conjunctiva was found to react to a greater or less degree, varying from simple congestion and swelling to an acute inflammation. In 5 cases only out of 100 which were carefully observed was there no discharge, the effect being limited to some redness and swelling of the mucous membrane. In the remaining 95 cases there was an abundant discharge. In 73 cases it lasted about five days while in 27 it continued for a longer period of time. In 11 cases a secondary infection occurred with a recrudescence of the symptoms. Dr. Cramer is inclined to believe that the reaction is more marked in children who have been born after a difficult labour or who have presented by the face. In two cases of ectropion of the upper lid the inflammation was extremely marked. The length of time the discharge lasts appears to depend upon the presence or absence of organisms in the conjunctival sac. For the first 24 hours the discharge is aseptic, but after the second day it contains numerous organisms of various kinds. In all the cases of secondary infection staphylococci or streptococci were found to be present. These investigations tend to confirm the view that the use of a 2 per cent. solution of silver nitrate is normally followed by a certain degree of conjunctivitis which tends to spontaneous cure and gives rise to no bad results. The fact that such a reaction does occur is no doubt the explanation of the unpopularity of this mode of treating the eyes of newly-born children with some medical men and with a great many monthly nurses. The dangers of ophthalmia neonatorum are, however, so great that there is no justification for neglecting any precautions that may tend to prevent the occurrence of this dread disease. There can be no doubt that the use of a 2 per cent. solution of silver nitrate is one of the most certain means of prevention, and its more general use would be of the greatest value in tending to diminish the very large number of cases of ophthalmia neonatorum which at the present time occur in midwifery practice.

[1] Centralblatt für Gynäkologie, No. 9, 1899.

THE ALLEGED POISONOUS COPPER-COATED MAUSER BULLETS.

IT has been stated pretty freely in the daily press that amongst other unfair devices adopted by the Boers in the present war was that of coating the Mauser bullet with a poisonous salt of copper—viz., verdigris. Strictly speaking, verdigris is basic acetate of copper, which may be obtained by allowing vinegar to come into contact with, or to evaporate on, a used copper coin. The same French word, however, has been applied, but wrongly, to the green rust (basic carbonate of copper) which forms on copper when in contact with moist air. Our Special Correspondent at the base also stated in a letter published in THE LANCET of May 5th, 1900, p. 1312, that he had seen a "clip" of Mauser cartridges the bullets of which had been dipped in verdigris, but in our issue this week he reports that on being submitted to a thorough analysis this green coating proved to be not verdigris but a mixture of paraffin wax and carbonate of copper, which, he adds, appears to have been used for the double purpose of preventing the cartridge suffering from damp and of supplying a hermetical closing between the brass capsule and the bullet, and thus preventing rust of the barrel. By the courtesy of Sir William Mac Cormac, who placed at our disposal some of these so-called copper-dipped bullets, we have been able to submit the coating as well as the nickel case which encloses the lead bullet to complete analysis. The results are of special interest in regard to the accusations made as to the sinister intentions of our enemy, and we are confident that the interpretation to which these results lead is correct and absolves absolutely the Boers from the charge of tipping the Mauser bullet with a poisonous salt. It is essential to state that the Mauser cartridge consists of a brass case (containing the explosive and detonator or cap) to the anterior end of which is attached a bullet of lead inclosed in a nickel jacket. The Mauser bullets which we examined were covered seemingly with a green coating extending from the apex of the bullet to about a quarter of an inch along the brass cartridge case. On scraping this wax carefully off, however, the first shavings proved to be quite colourless and, in fact, consisted of paraffin wax such as is used in making modern candles. As the scraping approached the surface of the nickel case the shavings became light green until on the surface itself the scrapings were quite green. The nickel

case proved to contain on analysis not only nickel but copper, and the green wax contained both those metals also. We have not the slightest doubt, therefore, that the bullets in the first instance were steeped in melted paraffin wax or wax candles solely to prevent fouling of the gun-barrel and to protect the nickel case against rusting, to which this metal is particularly liable, and that after a time both the copper and nickel of the case of the bullet entered into combination with the stearic acid (which is commonly added to wax candles) in the wax and turned it green. The same phenomenon is familiar to everybody in the green tears of a wax candle in a brass candlestick. It has been suggested that the colouring was of arsenical origin, but we failed to find the slightest trace of arsenic. The fact that the wax on the bullets contained precisely the same metals as were present in the case entirely sweeps away the suspicion that the Boers entertained a malicious intention and expressly coated their Mauser bullets with poisonous copper salts. This should be stated with some emphasis in order that our enemy may be treated with common fairness. Further, it is doubtful whether the bullet would carry the smallest amount of this green wax coating (considering its comparatively low melting point) to its billet. The metals only existed in traces. Many erroneous and contradictory statements have been made in regard to this matter and we are glad to be able to present such a satisfactory and, as we believe, perfectly true interpretation of the facts as revealed by analysis, which hitherto does not appear to have been carried out at that length or with that precision which the serious nature of the suspicion demanded.

THE HUXLEY LECTURE.

As will be seen by a reference to our advertisement columns Lord Lister has consented to deliver the third Huxley Lecture at Charing Cross Hospital on October 2nd. The lectureship was founded upon the death of Professor Huxley out of a sum raised by the medical school of Charing Cross Hospital and various friends in commemoration of Huxley having received his medical education at Charing Cross Hospital, and the subject appointed was that of Recent Advances in Science and their Bearing upon Medicine and Surgery. The first lecture was delivered by Professor Michael Foster in 1896 and the second in 1898, the lecture being biennial, by Professor Virchow. Lord Lister is a worthy follower of his two distinguished predecessors and his selection as lecturer in the present year is all the more fitting on account of our country being at war. The extraordinary and unprecedented success which the Royal Army Medical Corps has attained in the treatment of the wounded is due in very large measure to Lord Lister's world-renowned researches upon asepticism and its results.

THE Helen Prideaux Memorial Scholarship, value £50, will be awarded in July, 1900, to a graduate of the London (Royal Free Hospital) School of Medicine for Women. Candidates must be registered medical women of not more than three years' standing on June 1st, 1900, and must send in to the trustees, under cover to the secretary, an essay on some medical subject, on or before July 15th, 1900. The subject chosen by each candidate may be connected with any department of medical or surgical practice. In estimating the relative value of the essays the trustees will attach special value to the evidence afforded of clinical work and of direct and personal experience.

AT a general monthly meeting of the members of the Royal Institution held on Monday, June 11th, Sir James Crichton Browne, treasurer and vice-president, being in the chair, the following motion was unanimously agreed to:—

The managers of the Royal Institution of Great Britain, on the occasion of the retirement of Sir Frederick Bramwell from the office of honorary secretary, desire to place on permanent record an expression of their high appreciation of the admirable way in which he has performed the duties of that office and of his signal services to the institution generally.

THE Ingleby Lectures of the Mason University College, Birmingham, will be delivered on Wednesday, June 27th and July 4th, at four P.M., in the medical lecture theatre of the College, by Dr. O. J. Kauffmann, who has taken for his subject "The Commoner Neuroses of Childhood, their Pathology and Treatment."

Staff Surgeon Henry Peacock (retired R.N.) died on June 5th in his eighty-eighth year. He qualified in 1837 and in 1839 entered the Royal Navy. Subsequently he was appointed medical officer to the Dockyard at Chatham and staff surgeon to the Royal Dockyard Battalion.

A REUTER'S telegram states that Dr. J. Farrell Easmon of Cape Coast, West Africa, died from pneumonia on June 9th.

THE WAR IN SOUTH AFRICA.

THE war chronicle for the past week is of a mixed but, on the whole, of a very satisfactory character. It is nevertheless disappointing to learn at this stage of the campaign, and despite all the experience which our army has had of the tactics of the enemy that we still appear to be unable to prevent isolated bodies of troops and detachments from being surprised, surrounded, and defeated by superior numbers of the enemy. The defeat and capture of the Sherwood Foresters' (4th Derbyshires) Militia at Roodeval was a regrettable business, notwithstanding that it can have no real influence on the course of the campaign. The direct result of the wrecking of some miles of railway by the Boers and the consequent interruption of Lord Roberts's line of communication cutting him off from his base at Cape Town put a temporary check on his military operations. These occurrences indicate that the spirit and activity of the Transvaalers and Free Staters are factors which have still to be taken into account. Nevertheless, with the occupation of the enemy's capitals, with the successes we have obtained in capturing Botha's Pass and Almond's Nek by Buller's troops, and the news from the Western side and elsewhere, taken in connexion with the overwhelming forces at our disposal, we may confidently assert that the enemy's back is broken. The Boer forces may strike a furtive blow here and there, successfully attack different points and intercept Lord Roberts's long lines of communication from time to time, and by making occasional raids and then skilfully retreating cause the war to drag on, but these efforts must inevitably only prove futile in the end. How soon that end may now come no one can tell, for just at the moment of our writing the welcome telegraphic news has arrived of Lord Roberts's successful attack on Botha's force, and of the defeat and complete rout of De Wet by Lord Methuen's troops. The most unsatisfactory part of the business has hitherto been the way in which the Boers have usually succeeded in retreating without loss of their guns and convoys or any material loss to themselves. The British have rarely succeeded in "cornering" them so as to compel their surrender. We hope that it is true what a telegram from Pretoria, dated June 5th, says—namely, that 150 officers and 3500 men whom the Boers held as prisoners had been released. The Boers had intended to take all the British prisoners with them on evacuating Pretoria, but were frustrated by the arrival of the British invading force. Mr. Krüger nevertheless succeeded in taking away about 900 with him as hostages in his retreat towards the East. The casualties in the Sherwood Foresters' Militia at Roodeval were 36 killed and 104 wounded, and the news of the disaster

appears to have been telegraphed by Major Stonham, the medical officer commanding the Imperial Yeomanry Hospital. Lady Georgiana Curzon, president of the Imperial Yeomanry Hospital Committee, has since received the following cable from the Military Secretary, Cape Town: "Imperial Yeomanry Field Hospital in action, Roodeval. All safe."

Large batches of sick and wounded are arriving in this country by different transports. The steamship *America* (Transport 79) reached the Albert Docks last Saturday and disembarked 14 officers and 310 men invalided from South Africa. The ship left Cape Town on May 12th and had a good voyage, only two deaths occurring on the way. The whole of the men, of whom about 50 suffered from the effects of wounds, benefited greatly in health. 80 lying-down cases were on board at the beginning of the voyage, but with six exceptions these were convalescent on arrival. Three men very ill with enteric fever were transferred to Denton Sanitary Hospital and there were three cases of a serious nature for the Herbert Hospital, Woolwich. Dr. C. F. K. Murray and Dr. L. H. Hitchens were in medical charge, having the assistance of three nurses.

The transport *Orotava* arrived on June 10th with about 600 sick and wounded soldiers from the front, nearly all convalescent, there being only some 12 bad cases on board on arrival. Most of the men were transferred to Netley and the remainder to Colchester. Other transports are on their way home and arrivals will, of course, be of frequent occurrence. Meanwhile, strong reinforcements are leaving this country for the front. The home barracks are crowded and recruiting is going on apace. The saying is no doubt true enough that if we are not a military, we are nevertheless a warlike, people.

The last return issued by the War Office showing the total casualties since the beginning of the war up to the end of last week gives the total (exclusive of sick and wounded now in British hospitals in South Africa) as 25,728. The list is made up as follows:—

—	Officers.	Non-commissioned officers and men.
Killed in action	235	2,283
Died from wounds	63	551
Missing and prisoners (excluding those who have been recovered or released)	186	4,486
Died from disease	112	3,609
Accidental deaths	—	28
Sent home as invalids	664	13,481
Total	1260	24,468

The returns received by the last mail from the Portland Hospital in South Africa show: total admissions in hospital, 762; returned to duty, 108; sent to England, 98; convalescent, 258; deaths, 14; transferred to other hospitals at base, 133; remaining in hospital, 151, including 91 cases of enteric fever. In consequence of the fever epidemic 60 additional beds have been opened, making 160 in all, and two of the nursing sisters from New Zealand had been added by the War Office authorities to the hospital. The amount of sickness in the neighbourhood of Bloemfontein is abnormal. Further additional stores sent from England were being received at the date of this communication—viz., May 18th.

In consequence of the prevalence of the fever epidemic the Imperial Yeomanry Hospital has been compelled to provide a considerable number of additional beds, and large stores of hospital clothing, linen, &c., are being received. This reminds us that considering the enormous pressure on the lines of railway at the Cape there is much difficulty and delay in forwarding and distributing the stores sent out from this country. It would be well, then, for people forwarding gifts in kind to the hospitals and troops to try to find out beforehand whether supplies are procurable or not at the particular towns and stations to which they intend to despatch them, and, if they are, to forward cheques and money orders for their purchase locally. The diurnal variations of temperature in South Africa are already great and very trying. The nights are very cold and the troops—especially the sick and wounded—will need ample supplies of warm underclothing.

At the present time the sick in our hospitals altogether outnumber the wounded. The principal diseases are enteric fever and dysentery and sufferers from these complaints are sincerely to be pitied; they will stand in need of all that can be done for them in the way of good nursing and the most careful dieting. From what we have heard we may say that those who happen to know any of the nurses serving at the front and the particular hospitals to which they are attached would find it a good plan to send periodically any articles of clothing by parcels' post to their address for the use at discretion of the patients under their care. Supplies of this kind are often useful to meet emergencies or to provide for sick and wounded when leaving the hospital.

THE IMPERIAL YEOMANRY HOSPITAL.

BY ALFRED D. FRIPP, M.S., F.R.C.S.

Though there are still two of the English huts unfinished the Imperial Yeomanry Hospital has in all other respects reached at last its full state of development and I thought you might like to have a short account of some of the main features. The appended plan of the hospital grounds has been prepared by Dr. Barclay Black and with that plan in front of me I have jotted down a description of its various parts as one meets them in taking any visitor for a tour of inspection. Dr. Black, who is my staff officer, superintends all the work of the cleanliness and latrine departments of the camp. His plan not being the work of a skilled surveyor does not pretend to be of more than approximate accuracy as to distance, but it is at least faithful in intention and in effect.

To take first the smaller half of the hospital, which lies to the right of the railway line as you arrive from Cape Town, we have a group of isolation tents, for, like other base hospitals, we have not been exempt from the occurrence of an occasional case of scarlet fever. Further to the right are the tents of the medical staff, the two marquees being occupied by the ten surgeons' dressers. The bell tents occupied by the detachment of about 100 orderlies are seen to be separated by the main drain and also by the main road which leads from the wards to the main latrine from the tents of the medical officers. The main drain is made of four-inch earthenware pipes and is fed by various sinks throughout the hospital grounds. No solid matter is allowed to be thrown into the sinks, nor any infected water from the enteric fever department (this is all carried by our natives along the route indicated not far from the laundry to the dumping ground), nor greasy water from the kitchens (this is used to feed the pigs), nor does the drain go near any latrine or any water-supply pipe. Practically the only thing thrown down the sinks is water that has been used for washing. The main drain discharges by means of a system of subdividing trenches on to a part of the veldt which has a good incline away from the hospital. Between the bell tents and the railway line is placed a galvanised iron building which is subdivided into a central dry canteen for the orderlies and two lateral compartments forming workshops for the carpenters and painters respectively. Then comes a large tent used by the orderlies as a mess-room, recreation-room, and bath-room, followed by a collection of hospital marquees which are used only when the hospital is over full for the temporary accommodation of convalescent patients awaiting a train for transfer to Cape Town. The main urinal and latrine are shown towards the bottom centre of the plan. It has separate compartments for the sergeants, the orderlies, and the hospital patients, and we consider it a masterpiece for the Karroo. The floor is cemented throughout and for four feet outside the corrugated iron walls it is inclined and grooved so efficiently that the four natives, who are always on duty there, can, when they are not busy carrying buckets away to the dumping ground, frequently flush out the whole enclosure by means of an armoured hose which has a good head of water from a standpipe. The washings are collected in a cement-lined pit just outside and are thence removed in buckets to the dumping ground. No buckets come back from the dumping ground to any part of the hospital without having undergone a prolonged soaking and subsequent thorough cleansing in a large tank of disinfectant at the dumping ground. The bedpans and the urine-receivers from all patients in the hospital who are not able to walk to this latrine are carried thither by the orderlies and left in a special annexe, clean utensils being taken back to the wards in their place. The excreta are removed to the dumping ground by the natives at 6 A.M. For the enteric fever

and dysentery departments special disinfecting latrines are provided, as will be described later. To the right, in and near the laundry are (*a*) a Washington-Lyons disinfector capable of dealing with nine mattresses and many smaller articles in each batch; (*b*) a Russian bath for the treatment of stiff limbs which are so frequent both from rheumatism and from injury; (*c*) a blacksmith's forge; (*d*) a refuse-destructor, through which all paper, straw, small boxes, empty canned-meat tins, and other camp litter are passed, and the ash is then buried; and (*e*) a large filter plant by Messrs. Defries, which is driven by steam from the laundry and is large enough to cope easily with all the drinking water of the hospital. The laundry plant is large and efficient. It has been supplied by Messrs. Defries and is worked by men sent out by that firm, who are helped by four of the wardmaids and some 15 natives. It easily deals with the washing of the 700 white individuals at present in our camp. All of this plant is housed in corrugated iron sheds. All mattresses, bedding, and linen from the enteric fever and other infected wards are put through the Washington-Lyons disinfector at 7 A.M., having been stored, if necessary, overnight in an annexe of the enteric fever latrine between the huts occupied by enteric fever patients. The last point to note is the secondary well which has been sunk on the way to the station as a resource in case of emergency, but we have not yet had to fall back upon this water-supply, as that from the railway well at the station has proved amply sufficient for our needs.

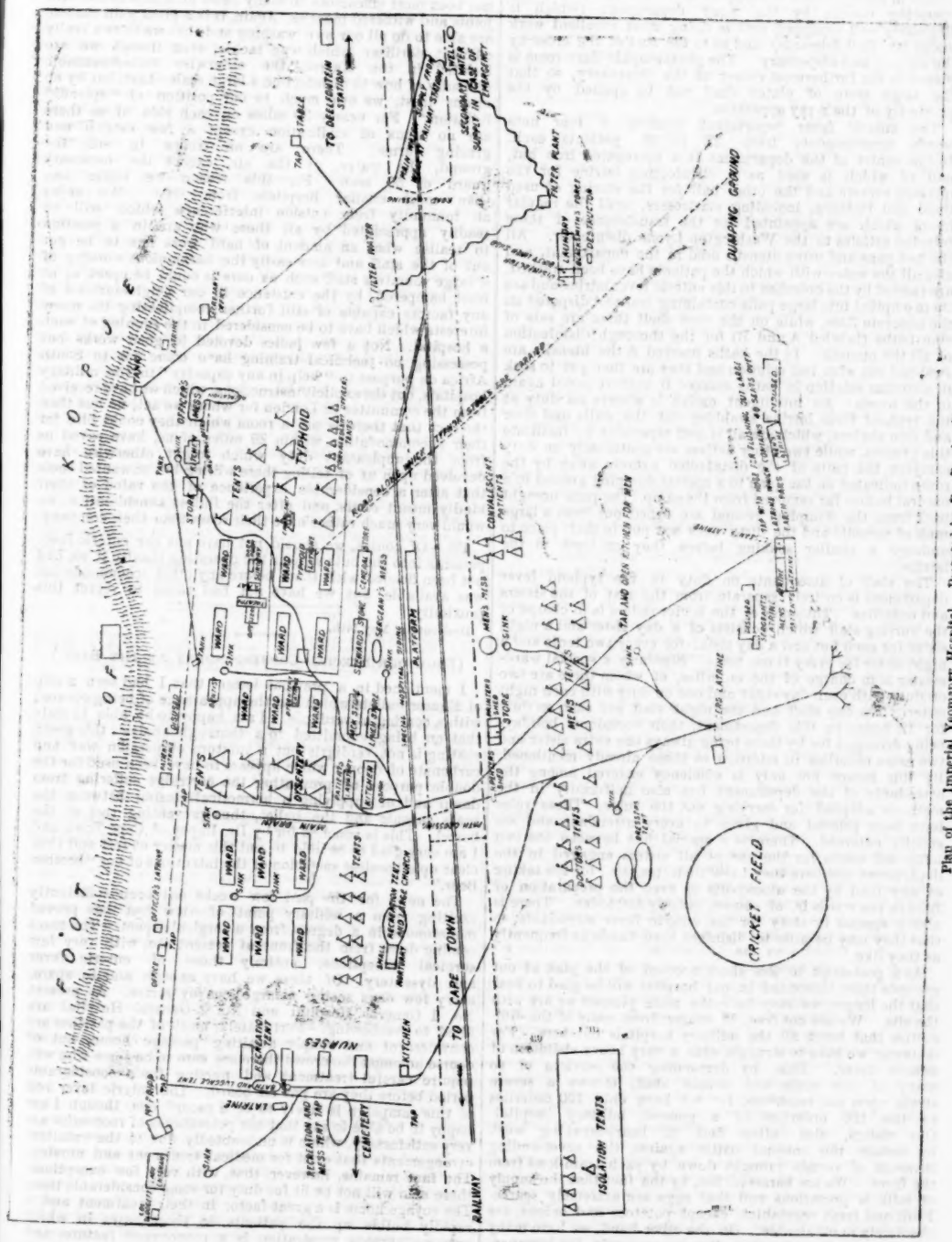
If we now retrace our steps to the main drain and walk up a slight natural incline to the railway line and cross the latter at the most southerly of the three level crossings indicated in the plan, and, starting from the extreme south of the hospital grounds, walk northward among the wards, we shall be going up a slight hill nearly all the way. The cemetery, a quarter of a mile off towards Cape Town, lies at our back. On our left-hand side is a group of three private residences and the sisters' quarters, which consist of: (*a*) four huts, the upper two of which, which are the largest, are occupied by the 29 day sisters, the next one by the 10 night sisters, and the fourth by the 10 wardmaids and the housekeeper (Miss Cheesman), whose services have been of the utmost value, for she not only attends to all the domestic arrangements of this department, but also superintends the laundry, which in itself is a very onerous and important task in view of our isolated position from the rest of civilisation; (*b*) the kitchen, which is seen close to the railway; (*c*) the luggage tent, which is placed between the two upper huts and opens into (*d*) the bath tent, which has its own supply of cold water from the main and of hot water from a boiler placed half way between the three private residences and the sisters' quarters, as well as its own sink just outside the tent for discharge into the main drain, the interior of the tent being separated by curtains into several bath rooms and the floor boarded; and (*e*) the latrine just behind the bath tent, which, like all the other latrines in the hospital, is worked on the bucket-and-earth system and served by natives who withdraw the buckets by means of a trap-door at the back of the seats without going into the latrine. The group of six large huts, sent out from England by Messrs. Boulton and Paul of Norwich, with a foreman to put them up, are a great success. They are admirably suited to the climate which yields considerable extremes of temperature in 24 hours and they are well ventilated. The material employed is corrugated iron outside, wood inside, and felt between. Each will be provided with a verandah as soon as the carpenters have time to get to work on the many similar improvements required throughout the hospital. Hitherto they have all been busy with the absolute essentials of construction. Each hut accommodates 34 patients without any crowding. The middle one of the first row that we come to is full of officers and the one just above it is full of Yeomanry. Sinks are shown contiguous to all the huts throughout the hospital, and the water-supply is drawn by the orderlies in cans from stand-pipes placed at convenient distances outside the hut. Boiler tanks are also scattered about the hospital so that there is an ample supply of both hot and cold water. Each hut has a lean-to outside for washing-up purposes. Below these on the plan will be seen a group of a dozen tents, half "tortoise" tent and green in colour and half "hospital" marquee. Each tent is equipped to accommodate eight iron frame and spring mattress bedsteads permanently, with which luxuries the hospital is provided throughout by the Birmingham Bedstead Manufacturers, but each tent is in addition liable to have thrust upon it in times of emergency four or five trestle beds. Close to these tents is the patients' large recreation tent, which on Sundays is transformed into the body of a church. The chancel, which is sufficient for the needs of the week-day services, is formed by a small hut separated from the recreation tent by large folding-doors and from the mortuary at the altar end by a thick partition. The mortuary, like the latrines, has a cement floor and a table and galvanised iron walls. No dead body lies there for more than 24 hours. Five o'clock is the hour for funerals. These, of course, are military, though the salute is dispensed with for fear it should disturb those patients who are in a precarious condition.

Thanks to the kindness of friends at home there is a most excellent library and supply of periodicals. These are in great demand. The books are kept in cases in the recreation tent, and Mr. Atkins, one of the surgeons' dressers, performs the duties of librarian. Similarly Mr. William Turner, one of the surgeons, presides over the distribution of all the indoor games throughout the hospital and organises all the outdoor sports, including cricket, football, lawn tennis, golf, &c. All the requisites for these games have to be procured in Cape Town and they are very expensive. The ground, also, does not lend itself at all favourably to the necessary preparation of level areas, so that we have had great difficulties to overcome. Then there is a group of eight white "tortoise" tents, larger than the last, for they accommodate ten permanent bedsteads, and beside them will be seen patients' lavatory and bath hut; it has a cement floor sloping to a sink in the corner and a good water-supply. In the kitchen hut all hospital food is cooked and the cooks have stores and offices. A latrine is placed between the two acute dysentery wards. On the plan a line is seen drawn round the dysentery department; this indicates that four of the "tortoise" tents mentioned already are included. These four are used for the convalescent dysentery patients.

Above the dysentery department is shown another hut, and above that again the small hut used by Mr. Newland-Pedley as his store-room, work-room, and living-room, though the actual operative dental work is carried on in the second or spare operating theatre to be described later. Below the dysentery department are seen the huts that house the pack store and the linen store. Close together are the sergeants' mess tent; a group of five convalescent tents; small tents, each house a convalescent officer; the officers' mess, into which opens the officers' recreation room, the secretary's office, a small latrine, the orderly's room, the store and kitchen for the officers' mess, and the dairy, from which the milk for the entire camp is dispensed after sterilisation by several large Aymard sterilisers. Miss Brereton, in addition to her work in the operative surgical department, presides over the work of the dairy. Half way to the station are the stable and coach-house in which a couple of Cape carts, each drawn by two horses, a cart which carries the linen backwards and forwards to the laundry, and the riding horses of the various officers, both medical and combatant, are housed.

This leaves for description only the enteric fever department and the cross-shaped surgical building.

In the cross-shaped building shown in the upper third of the plan towards the centre are the operating theatres, the surgery and dispensary, the x-ray department, and the surgical store. The last-named forms the head of the cross and, with the two operating theatres, is in the charge of Miss Brereton, till lately the sister in charge of the pay wards at Guy's Hospital. In her surgical store are accumulated all the supplies of instruments, dressings, antiseptics, anæsthetics, splints, trusses, and other medical and surgical paraphernalia. It is separated by a roofed-in open-air lobby from the operating theatres, one of which is devoted, except in times of stress, to the dental surgeon. The two theatres form the cross-piece of the cross. The theatre used for surgical operations is admirably equipped and furnished, Messrs. Down Brothers, who executed the order for all the instruments, having presented a complete set of aseptic metal furniture, including washhand stands, stools, dressing-tables, and a raise-and-lower table. The wooden lining of the theatre has been painted white. There are two large slabs of corrugated glass which give an excellent top light. The wooden floor is covered with linoleum. The doors are four



Plan of the Imperial Yeomanry Hospital. Prepared by Dr. Barclay Black.

feet wide, giving easy access for the bearers from the open air or from the x-ray department. The long limb of the cross is also separated from the operating theatre by a roofed-in air-space and is occupied as to the end nearest the operating theatre by the x-ray department (which is singularly well equipped and is doing most excellent work under Mr. Hall Edwards), and as to the foot of the cross by the surgery and dispensary. The photographic dark-room is placed in the furthermost corner of the dispensary, so that the large store of plates shall not be spoiled by the proximity of the x-ray apparatus.

The enteric fever department consists of four huts which accommodate from 22 to 26 patients each. In the centre of the department is a corrugated iron hut, half of which is used as a disinfecting latrine for the infected excreta and the other half for the storing of used linen and bedding, including mattresses, until the regular hours which are appointed for the transference of these infected articles to the Washington-Lyons disinfector. All the bed-pans and urine utensils used in the department, and also all the water with which the patients have been washed, are carried by the orderlies to this enteric fever latrine and are there emptied into large pails containing izal and disposed on the concrete floor, while on the zinc shelf there are sets of zinc baths (labeled A and B) for the thorough disinfection of all the utensils. In the baths marked A the utensils are swabbed out with izal solution and they are then put to soak in a similar solution in baths marked B until required again in the wards. An intelligent native is always on duty at the typhoid fever latrine swabbing out the walls and floor and iron shelves, which are all sloped especially to facilitate this process, while two other natives are continually on duty carrying the pails of the disinfected excreta away by the route indicated on the plan to a special dumping ground in a natural hollow far removed from the camp. The pails brought back from the dumping ground are fished out from a large tank of carbolic and the dirty ones are put in their place to undergo a similar soaking before they go back to the latrine.

The staff of attendants on duty in the typhoid fever department is entirely separate from the rest of the sisters and orderlies. Thus one of the senior sisters is in charge of the nursing staff which consists of a day sister and a night sister for each hut and a day sister for every two tents and a night sister for every three tents. Similarly a special ward-master is in charge of the orderlies, of whom there are two on duty with each day sister and one on duty with each night sister. The day staff and the night staff are each on duty for 12 hours in this department, their occasional holidays being arranged for by there being always one extra sister and two extra orderlies in addition to those already mentioned. By this means not only is efficiency ensured among the attendants of the department but also uniformity in the methods adopted for carrying out the rules. These rules have been printed and given to every attendant and are strictly enforced. There is a special hut between the two left-hand wards for the use of all sisters engaged in the department and here they have their tea, &c., for the taking of any food by the attendants or even the preparation of food in the wards is, of course, strictly forbidden. There is also a special lavatory for the enteric fever attendants, so that they may be able to disinfect their hands as frequently as they like.

As a postscript to this short account of the plan of our grounds those interested in our hospital will be glad to hear that the longer we stop here the more pleased we are with the site. We are not free, of course, from many of the difficulties that beset all the military hospitals out here. For instance, we have to struggle with a very heavy visitation of enteric fever. This, by demanding the services of so many of our male and female staff, throws a severe strain upon our resources, for we have only 100 orderlies to the 160 orderlies of a general military hospital. Our sisters, also, often find it heart-breaking work to sustain the unequal battle against the never-ending invasion of vermin brought down by each train-load from the front. We are harassed, too, by the fact that the supply of milk is precarious and that eggs are extremely scarce. Fruit and fresh vegetables, except potatoes and onions, are absolutely unobtainable. On the other hand, we have many things to be thankful for. Our water-supply, for instance, is unimpeachable. The climate, too, is most healthy, sunny and warm in the day and not yet very cold at night. The distant scenery is distinctly attractive. Our specialists in ophthalmic and dental surgery and in x-ray work have proved a godsend. The same may be said with the utmost truth of our body of nursing sisters which is larger than usual. Nor must our masseur be forgotten. His assistance has been most efficacious in many cases of fractures and stiff joints and withered muscles. Again, it is a great gain that we are able to do all our own washing and that we have a really efficient steriliser which can tackle, even though we are isolated in the Karroo, the otherwise insurmountable difficulty of how to disinfect on a large scale. Last, but by no means least, we owe much to our position of "splendid isolation." For nearly 30 miles on each side of us there are no signs of civilisation except a few ostrich and grazing farms. There are no troops to soil the ground, the water, or the air, except the necessary guard of 50 men. For this reason we suffer less than most similar hospitals from dust. We enjoy an immunity from outside interference which will be readily appreciated by all those who are in a position to realise what an amount of hard work has to be got out of the staff and how easily the harmonious working of a large volunteer staff such as ours is could be upset, or at least hampered, by the existence in our neighbourhood of any factors capable of still further complicating the many interests which have to be considered in the running of such a hospital. Not a few ladies devoted to good works but possessing no technical training have come out to South Africa on purpose to "help in any capacity" in the military hospitals, but the explicit instructions, which we have received from the committee in London for whom we act, no less than the fact that there is not a room which they could hire for their accommodation within 29 miles of us, have saved us from the unpleasant duty which might otherwise have devolved upon us of telling these willing but unwanted souls that after a considerable experience of the value of their kindly meant offers, and after the fullest consideration, we would very much rather have their room than their company.

P.S.—Of course, we should not have put the enteric fever patients into the huts so near the operating theatre if we had not been flooded with them before any other accommodation was available, but we have not had cause to regret this proximity.

Deelfontein, May 14th.

(FROM OUR SPECIAL CORRESPONDENT AT THE BASE.)

I mentioned in a previous letter[1] that I had seen a clip of Mauser bullets which had the appearance of being covered with a coating of verdigris. I am happy to be able to state that on being submitted to a thorough analysis this green coating is not verdigris but a mixture of paraffin wax and carbonate of copper which appears to have been used for the double purpose of preventing the cartridge suffering from damp and of supplying a hermetical closing between the brass capsule and the bullet, thus preventing rust of the barrel. This is vouched for by Dr. Impey of Cape Town and I am very glad to be able to put this matter at rest and thus clear up a baseless suspicion of the intentions of our "brother Boer."

The news for the past few weeks has been sufficiently exciting from a military point of view but has proved monotonous in a degree from a surgical aspect. The cases coming down from the front at present are, with very few surgical exceptions, entirely those of enteric fever and dysentery. Of these we have enough and to spare, every few days seeing a large convoy arrive. At present No. 1 General Hospital and No. 2 General Hospital are filled to overflowing. Fortunately, most of the patients are convalescent and simply awaiting passage home, but of course amongst the crowd there are sure to be some who will require careful treatment and nursing for a considerable period before they are put on board. The enteric fever roll of this campaign is likely to be a record one, though I am happy to be able to say that our percentages of recoveries are very satisfactory, which is undoubtedly due to the excellent arrangements that exist for medical treatment and nursing. The fact remains, however, that, with very few exceptions, these men will not be fit for duty for some considerable time. The voyage home is a great factor in their treatment and it rapidly builds up the patients in those cases in which extreme nervous prostration is a pronounced feature, and there are many such. In fact, it is rare to see patients who

[1] THE LANCET, May 5th, 1900, p. 1312.

have had even slight attacks and no complications escape the nervous sequel.

Since my last letter No. 3 General Hospital has been sent up to Kroonstad from Rondebosch and by this time it is in full swing. The hospital was accompanied by 30 nursing sisters, and in its place a convalescent hospital for 500 cases is to be established. Already huts are springing up where tents once stood. The transports have been leaving at frequent intervals with full complements of invalids, both officers and men, and a very great number must have gone home during the past month. The Surgeon-General is at Bloemfontein, and Colonel McNamara (from Gibraltar) has succeeded Colonel W. F. Stevenson as principal medical officer of the lines of communication, the latter being at the front with the headquarters.

I am sorry to say that disease and hard work have been making themselves felt amongst the officers and men of the Royal Army Medical Corps. I hear that two officers have fallen victims to enteric fever at Bloemfontein and that a considerable number are on the sick list; but this was only to be expected—they are but flesh and blood like other men, though some people seem to think that they are machines and can go on for ever without rest or relaxation. This is a grim fallacy that will, I am afraid, have a rude awakening at the end of the war. Let us trust that the lesson may be taken to heart and that a more generous policy may be inaugurated in matters medical in the army of the future.

The winter rains have begun in this colony now and the mornings and evenings are cold and damp, but up-country the rains are over and the climate is charming.

A convalescent sanatorium for officers is to be established at Majesfontein at the end of this month and will relieve the pressure on the Claremont Officers' Hospital which during the past month has been very great.

The hospital ship *Princess of Wales* is lying in Simon's Bay and is, I hear, to be sent up the coast before coming home. She is an object of great curiosity to the inhabitants and is visited by numbers of people, who return amazed at the pitch of perfection attained in her fitting up.

Claremont, Cape Colony, May 23rd.

THE NEW CLINICAL LABORATORIES OF THE WESTMINSTER HOSPITAL.

ON June 12th Lord LISTER presided over the ceremony inaugurated by the governors of the Westminster Hospital for the official opening of the new clinical laboratories which have recently been added to that hospital. The proceedings consisted of a reception in the board room of about 100 guests by Sir John Wolfe Barry (chairman of the House Committee), Dr. W. H. Allchin (senior physician to the hospital), and Dr. W. S. Lazarus-Barlow (pathologist to the hospital).

Sir J. WOLFE BARRY explained that the clinical laboratories had been instituted for the elucidation of disease and thus to assist in relieving the suffering poor. The formation of such a department enabled surgeons and physicians to approach the treatment of disease with absolute scientific knowledge as compared with the greater difficulties that they had in times past.

Dr. LAZARUS-BARLOW said that before inspecting the laboratories he would like to call the attention of those present to one or two points of importance. The Westminster Hospital endeavoured to keep abreast of research work so as not only to give the very best chances to the patients, but also, speaking from a utilitarian standpoint, to render the most efficient return possible to the hospital subscribers for the money received. The House Committee had spared no expense in making the laboratories as perfect as possible in regard to equipment. The fundamental requirements in clinical laboratory work were that the bacteriological portion must be divided from the histological portion. It was necessary that the bacteriological investigations should be carried on with an absence of dust, and for that reason the two departments were divided from one another by a glass partition with a swinging door. For histological work light was an important consideration, and as far as natural light was concerned each investigator would be provided with a north light. For artificial light eight pendant electric lamps of 16 candle power had been provided and the walls and the ceilings had been lined with white encaustic tiles. There was an ample supply of hot and cold water and great attention had been paid to the drainage. With the exception of where the drains were actually under the flooring they were open earthenware channels specially constructed and lined with vitreous enamel. Every drain was most carefully trapped and the drainage system of the laboratory was entirely distinct from the hospital drainage. By making the fittings in the cupboards moveable and providing five manholes cut through the flooring all the drains could be thoroughly inspected in about 15 minutes. There was an ample supply of gas and there were 39 electric plugs which could be used for the purposes of motive power or for lighting. He would draw their attention particularly to a cupboard capable of holding 9000 microscopic slides, the idea being to preserve specimens so that any case which returned to the hospital after a lapse of some years could be discussed with the aid of the original sections prepared when the patient first came in. This would afford any observer the opportunity of forming a fresh opinion from the original specimen in case the individual judgment of the original pathologist was not accepted in every detail. All apparatus necessary for clinical work had been procured and was ready for use, but the hospital had not been asked for any funds to pay for research apparatus of a more or less speculative character. The laboratories were of such a kind that it was justifiable for the hospital to pay for their upkeep towards the advancement of scientific research. Dr. Lazarus-Barlow then read a letter of congratulation on the opening of the laboratories from Professor W. H. Welch of the Johns Hopkins University, Baltimore.

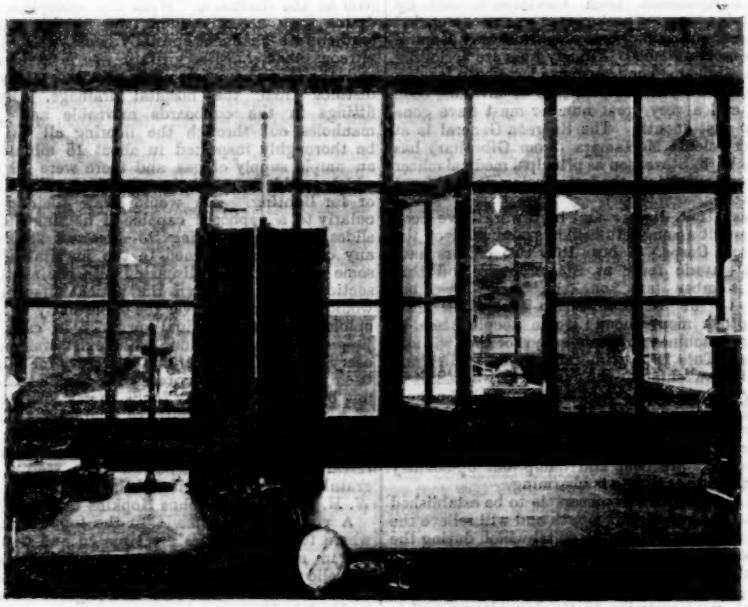
A visit was then made to the top floor of the hospital where the laboratories are situated and there Lord Kelvin put in motion a motor to shake some tubercle bacilli in carbolic acid and Lord Lister made a cultivation from some tubercle bacilli derived from the original tubercle discovered by Koch in 1884.

On re-assembling in the board room Lord LISTER gave an address in which he said that the clinical laboratories they had inspected would enable the physicians of the hospital to bring to bear on their cases the most advanced knowledge and the most refined methods of investigation. Many a diagnosis that otherwise would be obscure would be made clear. Successful treatment was directly proportionate to correct diagnosis. He was convinced that the work carried on there would not only benefit the patients in that hospital but would also unfailingly extend the boundaries of knowledge so as to promote the now rapid advance of pathological and therapeutical research. There was another important way in which service would be rendered and that was the powerful means the laboratories would afford for sound practical knowledge to the student. There was now a tendency to look askance at medical schools connected with hospitals and to grudge the money spent on their maintenance and extension. There could not possibly, he conceived, be a greater mistake. Without the opportunity of practical instruction afforded by hospitals the education of the rising generation of medical men would be absolutely impossible, and it might be fairly discussed whether the educational services rendered by hospitals were not of greater importance and benefit to the welfare of the community than their direct advantages to the patients treated in them. He considered it a matter for which the governing body of the Westminster Hospital was to be congratulated, and he thought that the public owed a debt of gratitude to them for wisely and boldly devoting a large sum of money to the creation of these laboratories. He felt sure that before many years were over it would be recognised that these laboratories were amongst the most important means which hospitals could contain of doing good service to the community. Lord Lister concluded with a complimentary reference to the appointment of Dr. Lazarus-Barlow as pathologist to the hospital.

Dr. W. S. CHURCH (President of the Royal College of Physicians of London) said that he would not be in a position to properly treat his patients at the hospital with which he was connected unless he had the advantage of the experimental work in the clinical laboratory. A great charity in the largest sense of the word would be effected by affording facilities for the investigation of disease leading to a decrease in the necessity for so many beds at the hospital.

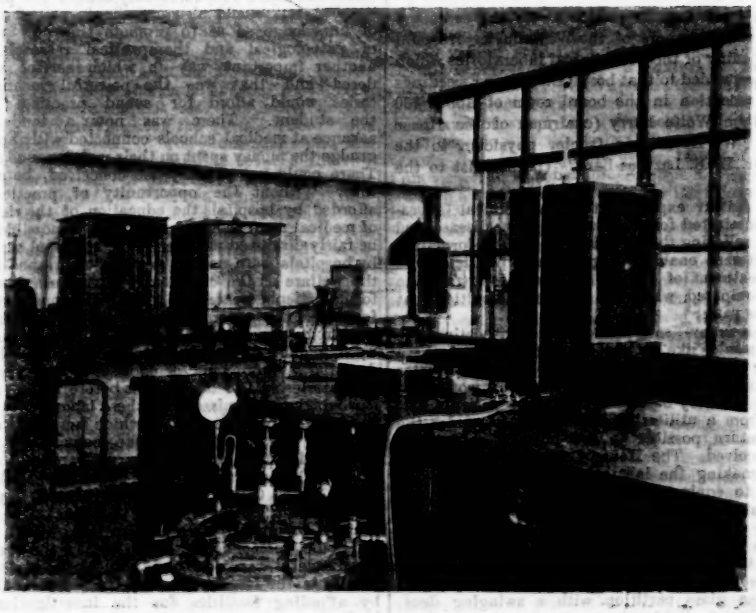
Sir WILLIAM MACCORMAC (President of the Royal College of Surgeons of England) referred to the creation

FIG. 1.



A general view of the two Laboratories

FIG. 2.



A corner in one of the Laboratories.

of similar laboratories at St. Thomas's Hospital five years ago and said that the greatest possible advantage had accrued in the treatment of the patients, the accuracy of diagnosis lending itself materially to increasing the certainty of success.

In the course of the ceremony the architect of the new buildings, Mr. H. Percy Adams, was introduced to Lord Lister and Lord Kelvin, and the excellence of the work, which was carried out by Messrs. Baird and Tatlock, received special notice.

A vote of thanks to Lord Lister was proposed by Lord KNUTSFORD, a vice-president of the hospital, seconded by Dr. ALLCHIN as representing the medical staff, and supported by Mr. W. G. SPENCER on behalf of the surgical staff.

Lord LISTER briefly replied and the proceedings terminated.

THE ANNUAL MEETING OF THE BRITISH DENTAL ASSOCIATION.

THE British Dental Association celebrated its twenty-first anniversary and held its annual meeting on Saturday, Monday, and Tuesday, June 2nd, 4th, and 5th, in Leeds. At the general meeting held on the first day in the Central Hall of Yorkshire College, the retiring President, Mr. J. H. Mummery read a valedictory address previously to vacating the chair in favour of the new President, Mr. George Brunton.

The treasurer's report which was submitted to this meeting showed that during the year the membership had considerably increased and numbered, at the end of 1899, 1089. The balance shown at the end of the year amounted to £1900. The secretary's report, which dealt principally with legal business and matters of discipline, called attention to a case which arose out of the use of the title "dentist" and the description "dental establishment." The result of the trial was the infliction of a penalty, the presiding magistrate remarking that the case must act as a warning to the defendant and others and that it was the duty of the bench to protect the public and they would do so.

After other business a hearty welcome was given to M. Burt, a delegate from the International Dental Congress to be held in Paris this year. M. Burt cordially invited the members of the British Dental Association to attend that Congress.

Subsequently the meeting was thrown open to visitors and a large number of ladies attended. Alderman JOHN GORDON, the mayor of Leeds, in a humorous speech welcomed the members and visitors to the city, and the PRESIDENT expressed on behalf of the association his thanks to the mayor for this welcome.

In his address the PRESIDENT alluded to the progress which dentistry had made and called to mind some of the great names connected with the dental profession. In the chemical lecture theatre of Yorkshire College during the afternoon several interesting lectures were given, and social gatherings terminated the first day's proceedings.

On the morning of the second day several important papers were read, among them being one by Mr. LLOYD WILLIAMS (London) on the Teaching of Mechanical Dentistry in Dental Schools. This was followed by a long and interesting discussion. The reader of the paper urged that the dental surgeon needed the continual exercise of manual dexterity to a greater degree than in any other branch of surgery and that the conditions required almost microscopic exactitude. Three years in the laboratory, he maintained, was barely time to enable the student to obtain a grasp of his work.

In the afternoon Mr. T. CHARTERS WHITE, the president of the Microscopical Section, gave an address on Photo-micrography, and demonstrations of crown work and other subjects filled the business portion of the time. Later in the afternoon a reception was held in the Medical School in Thoresby-place, and in the evening the annual dinner was held at the Hôtel Métropole. Mr. George Brunton, the President, occupied the chair and among those present were Mr. J. H. Mummery (ex-President of the association), Mr. T. Pridgin Teale, F.R.S., Professor De Burgh Birch (dean of the Yorkshire College Medical Department), Mr. J. Smith Turner, Mr. C. S. Tomes, F.R.S., M. Burt, Mr. T. R. Jessop, Mr. F. Canton, Professor T. Wardrop Griffith, Mr. Storer Bennett (chairman of the representative board of the association), Dr. A. G. Barrs, Dr. E. F. Trevelyan, Dr. J. Spottiswoode Cameron (medical officer of health of Leeds), Mr. T. S. Carter, Dr. T. Churton, Dr. J. F. W. Silk, Dr. J. B. Hellier and Mr. J. F. Pink (secretary of the association).

In responding to the toast of "The City and Trade of Leeds" Alderman HARDING said that he was glad that a school of dentistry for Leeds had been foreshadowed.

Mr. T. R. JESSOP, who proposed the toast of the evening, said he would like to see the British Dental Association amalgamated with the British Medical Association and occupying a position as a section of that association.

Mr. J. SMITH TURNER responded.

With the toast of "The Visitors" the name of Mr. Pridgin Teale was coupled.

In reply Mr. TEALE spoke of the interest taken by the General Medical Council in dental matters and from this he augured good things.

The work during the morning of the third and closing day principally consisted of various demonstrations of practical work in dentistry. In the afternoon the general meeting was continued in the chemical lecture theatre, where Mr. Norman G. Bennett (London) read a paper on the Need for the Recognition of the Association of Dental Surgeons by the War Office and Admiralty. Mr. Bennett said that between the years 1875 and 1885 one in every 138 recruits for the army was rejected on account of defective teeth. At the present time the facilities for obtaining the benefits of conservative dentistry in the service were nearly as meagre as they were 20 years ago, the list of instruments supplied to surgeons at the army station hospitals being quite inadequate for any useful purpose. The instruments supplied to the naval surgeons were certainly better than those given to the army. He contended that the conditions laid down with reference to recruits of both services were unduly severe, and referred to a question recently answered in the House of Commons by Mr. Goschen, who stated that the number of men and boys rejected on account of bad teeth was as large as 25 per cent. Reviewing the conditions prevailing in other countries, Mr. Bennett said that the United States were markedly in advance of other nations. For several years efforts had been made to bring about the appointment of dental surgeons in the army, and a Bill with a likelihood of becoming law was now before the House of Representatives, which provided for the appointment of contract dental surgeons with no rank—or possibly ranking with the civil surgeons who were with the English army in South Africa—to attend to the wants of the soldiers. A discussion followed in which the urgency and need for dental assistance in the services were insisted upon.

Subsequently a motion was carried requesting the Representative Board of the Association to seek steps to further the proposal to provide proper dental aid to the army and navy.

An informal reception by the President at the Hôtel Métropole brought the proceedings of a well-attended Congress to a close.

It was decided to hold the next annual meeting in London in August, 1901, and Mr. S. J. Hutchinson, consulting dental surgeon to University College Hospital, was chosen president-elect.

THE MEDICAL, SURGICAL, AND HYGIENIC EXHIBITION.

(*Continued from p. 1674.*)

FOODS and special foods were well represented and some new food products have been brought forward during the past year which are worthy of consideration. Plasmon, for example, is a cleverly prepared white powder, consisting of the proteids of milk together with the mineral substances, which is soluble almost completely in water. According to our own analysis, which at the present time is not completed, it consists broadly of one-tenth of milk salts and nine-tenths of milk proteid. This interesting preparation has been spoken of so favourably that we are at the present time submitting it to further

analysis in THE LANCET Laboratory, and on the results being obtained we shall be able to describe it more fully. Plasmon is used with advantage in raising the food value of biscuits, beef extract, and chocolate, all of which preparations were exhibited by the Plasmon Syndicate, Limited, of 55, Duke-street, Grosvenor-square, London, W. Messrs. G. Nelson Dale and Co., Limited, of 14, Dowgate-hill, London, E.C., devoted the space on their stall exclusively to the exhibition of specimens of "Hipi," a pure mutton essence. We have shown in our analytical records that this essence possesses a high nutritive value and affords an agreeable change from various beef extracts. It yields a broth of excellent flavour containing pronounced stimulating and nutritious properties. The well-known Milkmaid brand of condensed milk was amongst the exhibits of the Anglo Swiss Milk Co. of 10, Mark-lane, London, E.C. The specimens included unsweetened, sterilised, and enriched milk known as ideal milk and cocoa, chocolate, and coffee and milk. It is satisfactory to add that this company take care in the preparation of their condensed milk not to eliminate the important article of food milk-fat during concentration. We have before referred to the excellence and convenience in use of Cerebos salt, which is in the condition of fine powder which does not cake through damp and which contains further added phosphates. This preparation was shown by Cerebos, Limited, of Newcastle-on-Tyne and 3, Maiden-lane, London, E.C. The Hovis Bread Flour Company of Macclesfield showed an assortment of their products, the basis of all of which is Hovis flour, which contains the germ of wheat unimpaired. Under the name of "Lemco" the well-known Liebig Company's extract of beef is in future to be known. Its composition and its mode of preparation leave no doubt of its nutritive value and it serves besides as a stimulant to the assimilative processes. The same company (of 9, Fenchurch-avenue, London, E.C.) exhibited specimens of Peptarnis which, as we have shown, contains a high proportion of peptones. It is therefore easily digestible without objectionable flavour and is valuable where weakness of the digestive system exists especially as a sequel of disease. Messrs. Fairchild Brothers and Foster of Snow-hill-buildings, London, E.C., presented to view their well-known food products which are, in the main, so constituted as to be admirably adapted for invalid use or in those cases where digestive capacity is impaired. The exhibit included pure specimens of pepsin and the zymines for producing peptonised milk. Some good meat preparations were shown by Messrs. Cooper and Co. of 80, Gloucester-road, South Kensington, London, W. These included meat-juice, beef essence, chicken, mutton, turtle, and veal essence, which are all supplied in glass jars bearing the distinctive title "Globena." These preparations appear to constitute such an excellent series of easily digestible and nourishing foods that we propose shortly to submit them to analysis in THE LANCET Laboratory. The Manhu Diabetic Foods deserve particular attention, since although they contain the cereal carbohydrates, yet it is stated that these are so broken up as not to affect the diabetic patient in the same manner as starch. Indeed, instances are quoted where these foods apparently have given benefit to diabetic patients. Our own analysis has shown that these foods consist of cereal flour which has been submitted to a process which practically dextrinises the starch. The question remains whether dextrine metabolises in the same way as does starch. It seems to us that this point is worth investigation, but it may be stated that chemically dextrinised starch is even more easily converted into sugar than is starch itself. The evidence of chemistry in the laboratory, however, is not always in accordance with physiological experience. In their published testimonials together with analysis and reports we notice that Messrs. Irving, Son, and Jones, of Liverpool, and of 83, Charing Cross-road, London, W.C., bring forward very little clinical evidence, and it would be more satisfactory if the statements in favour of these foods containing a great percentage of carbohydrates could be confirmed by well-known authorities on glycosuria. These remarks apply with equal force to the Cheltine Foods which are prepared by Worth's Foods Syndicate, Limited, of Cheltenham. These foods contain the derivatives of starch or dextrinised carbohydrates as the result of a special process, so that the proportion of carbohydrates is just the same as in wheaten flour. On the tin of Cheltine Food it is stated that the food cannot be converted into sugar—a statement which is quite incorrect. We have found, as we expected to find, that the food readily yielded sugar on hydrolysis. We repeat that testimonials based on analytical data are of no value whatever. What is wanted is clinical evidence, and clinical evidence alone, and this should not be difficult to obtain. We are glad to find that Messrs. Cadbury Brothers draw attention to the fact that there are strong grounds for objection to the addition to cocoa of certain foreign substances. This resource is quite unnecessary and, indeed, pernicious, especially having regard to the fact that cocoa alone is an excellent food as well as a stimulant, having a salutary action upon the nerve centres. Some excellent specimens of their admittedly pure articles were shown by Messrs. Cadbury Brothers of Bournville, near Birmingham. Milk foods were well represented at the exhibit of M. Henry Nestlé of 48, Cannon-street, London, E.C., the condensed Swiss milk being a notable example of this sort of preparation which contains a maximum amount of butter fat. Milk companies were well represented, especially in the direction of specially prepared milks. A notable example was that of the Aylesbury Dairy Co. of St. Petersburg-place, Bayswater, London, W. Here were shown all kinds of modified milk preparations, comprising sterilised milk and cream, humanised milk, peptonised milk, specially prepared whey, cream milk for infants, milk sugar, and a special sterilised food. The exhibit also included specimens of Koumiss which has been used with advantage in the early stages of phthisis. Excellent also are the milk preparations of the Friern Manor Dairy Farm of 20, Farringdon-street, London, E.C. The humanised milk of this company is prepared by Dr. Gaertner's process which presents special points of advantage, especially in regard to the requirements of infants. The Frame Food Company of Lombard-road, Battersea, London, S.W., showed their well-known extract which contains the nutritive principles of wheat bran, including a large proportion of soluble phosphates. Several food preparations were shown which are enriched with Frame Food, thus raising undoubtedly their nutritive value. Somatose, as we have shown in an analysis from THE LANCET Laboratory, consists practically of albumose derived from the digestion of beef. It is a practically tasteless and odourless powder soluble in water. It is, moreover, a powerful food and is well adapted also as a therapeutic adjuvant where the process of nutrition is feeble. The exhibit which was arranged by the British Somatose Company of 165, Queen Victoria-street, London, E.C., included the interesting compound of somatose with iron which possesses the advantages over the ordinary iron preparations of causing no gastric disturbance or constipation. Messrs. Cosenza and Co. of 95, Wigmore-street, Cavendish-square, London, W., exhibited the Maggi's Consommé and Cross Star soups which have proved so valuable in the preparation of soup for invalids and also for transport purposes, as evidenced by their adoption for hospital use in the present war. Special foods were a feature, also, of the exhibit of Messrs. Callard and Co. of 65, Regent-street, London, W. The specimens included food for the diabetic, food for reducing weight, food adapted for the rheumatic and gouty, and a food for patients in whom the digestive functions are easily disturbed. The Excel Milk Co. of 38, Vauxhall-bridge-road, London, S.W., showed specimens of their sterilised milk. Apart from the efficient process of sterilisation we have shown in our analytical records that the milk is of very high quality. Messrs. J. and G. Cox, Limited, of Edinburgh and Eastcheap-buildings, London, E.C., presented an attractive series of specimens of their "sparkling" gelatin. We have examined this gelatin in THE LANCET Laboratory and were able to report very favourably of this product. It is well adapted for culinary purposes and is convenient also for the making of wine or beef-tea jelly, more especially on account of its purity. A very interesting series of preparations of milk was presented to view by Messrs. Welford & Sons' Dairy Co., Limited, of Elgin-avenue, Maida Vale, London, W. The specimens shown included asses' milk, humanised milk peptonised milk, ordinary sterilised milk, and sparkling Koumiss. The company carry on their business under strict medical supervision and on lines of organisation in accordance with modern knowledge. They further undertake to prepare modified milk in accordance with the directions which a medical man may think fit to prescribe. The Protene foods have been already fully described in the analytical records from THE LANCET Laboratory in THE LANCET of

Nov. 5th, 1898, p. 1207. Protene food itself is essentially pure milk proteid; its food value is therefore evident. Several food preparations are now made by the Protene Co., Limited, of 36, Welbeck-street, London, W., in which the normal food value is considerably raised by the addition of protene. Messrs. Broomfield and Co. of 83 Upper Thames-street, London, E.C., devoted their stall to the exhibition of specimens of Albene which is described as a pure, highly refined vegetable fat which is suggested as an efficient substitute for cooking purposes for lard, margarine, and butter. One advantage of it is that it does not get rancid. It presents the appearance of purified and refined cocoanut oil. A very interesting series of foods suitable for diabetics, dyspeptics, and invalids was shown by Messrs. G. Van Abbott and Son, of 104, Wigmore-street, Cavendish-square, London, W. The series comprises a selection which should enable the medical man to select exactly what he requires for any particular instance. The gluten loaf seems specially worthy of commendation. The Bovril Company, Limited (152-166, Old-street, City-road, London, E.C.) exhibited many forms of beef preparations, including extracts and raw juices, and a number of preparations of undoubted nutrient character. Indeed, the list of the company's specialities comprises a complete invalid dietary in addition to a number of foods for everyday use. Close by the Bovril preparations was a stall devoted to the exhibition of Virol, which is manufactured by the Bovril Company. As we have pointed out in our analytical records, this preparation presents the composition of not only a complete food, but also of a food containing elements that are readily assimilable.

An exhibit which attracted considerable attention was the Dowsing method of applying radiant heat and light in the treatment of rheumatism. The apparatus consists of a series of elongated electric incandescent lamps placed within reflectors at the side of the bed. By this method, of course, light as well as heat rays are brought to bear upon the patient. The apparatus may be viewed in working order at the offices of the Dowsing Radiant Heat Co., Limited, 24, Budge-row, Cannon-street, London, E.C. The specialities of the Domen Belts Co. of 456, Strand, London, W.C., are well known. Abdominal belts for all kinds of abnormal conditions were shown as well as the "stoop cure" and other appliances. More scientific, perhaps, than many of the other exhibits was that of Messrs. W. Watson and Sons of 313, High Holborn, London, W.C. Here were shown the requisite apparatus and accessories connected with the application of the x rays to medical practice. In addition there were microscopes and microscopical preparations and photo-micrographic accessories. Messrs. Wodderspoon and Co. of 7, Serle-street, Lincoln's Inn, London, W.C., showed an excellent series of temperature-, hour-, and diet-charts. Surgical instruments were well represented in an excellent selection especially adapted to meet the requirements of aseptic surgery by Messrs. Mayer and Meltzer of 71, Great Portland-street, London, W. Surgical instruments were also a feature of the exhibit of Messrs. John Weiss and Son of 287, Oxford-street, London, W., but they showed also some interesting apparatus for the purpose of sterilising both instruments and dressings. Messrs. Pate, Burke, and Co. of 6, Wool Exchange, Basinghall-street, London, E.C., presented to view their excellent surgical and sanitary dressings, the basis of which is Petanelle wool. Petanelle wool, besides being light and highly absorbent, serves also as a check to fermentation and putrefaction—a property which is of decided advantage.

The exhibit included Petanelle disinfecting powder, the absorbent containing the antiseptic and disinfectant being a peat substance. Messrs. Anderson, Anderson, and Anderson, of 37, Queen Victoria-street, London, E.C., showed a number of indiarubber and waterproof materials adapted especially for medical use. This firm is well known for its water-beds, water-cushions, and water-pillows. Mr. Harry Cox of 10, 11, and 28, Cursitor-street, Chancery-lane, London, E.C. undertook the demonstration of x rays with the very latest and best apparatus for the purpose. Examples were shown of x ray outfits supplied by him for the present war. The improved instep arch sock, the invention of Mr. Holland, of 40, South Audley-street, Grosvenor-square, London, W., is now made in three forms—namely, the ordinary sock for moderately flat feet, the low sock for severe cases, and the broad sock for long-standing cases. Besides this appliance, which is well known as an aid in the treatment of flat-foot, other similarly interesting exhibits were shown, such as cork boots for the lame and boots for corns on the soles of the feet. A very useful series of accessories for the use of nurses was submitted for inspection by Mr. William K. Stacy of 4, Newgate-street, London, E.C. It would be impossible in the space at our disposal to mention every individual speciality shown on the well-stocked stall of Messrs. Southall Brothers and Barclay, Limited, of Birmingham. The exhibit included every sort of medical and surgical appliance besides the sanitary preparations to which this firm gives special attention. A very useful little appliance, and one which we have mentioned favourably before, is the Instra Warmer, which was exhibited by Messrs. D. Blair and Co. of 6, Strand-on-the-Green, Chiswick. The principle of this invention—namely, that depending upon the slow combustion of a charcoal rod—is now applied not only to pocket-warmers but to chest-warmers, foot-warmers, food-warmers, and to ankle-straps also. The chief features of the exhibit of Messrs. S. Maw, Son, and Thompson, 7 to 12, Aldersgate-street, London, E.C., were perhaps the aseptic instruments and dressings, but there were besides a great number of recent surgical and medical appliances which afforded an interesting subject of inspection for medical men. The patent appliances for the lame made by the O'Connor Extension Company, of 2, Bloomsbury-street, London, W.C., are well known. It is worthy of remark that the appliances of this company were accepted by the War Office for use in South Africa.

Sanitary appliances and preparations are a distinct feature of this exhibition, but this year the space devoted to this section seemed to be smaller than on the previous occasion. Probably the sanitary appliance which first attracted the attention of the visitor as he entered the hall was the Blackburn Electric Fan and Motor. Doubtless the air in the building owed its freshness to this ventilator. The three fans employed for the purpose were supplied by the Blackburn Ventilating Co. of 63, Fore-street, London, E.C. The stall of Messrs. A. Boake, Roberts and Co. of Stratford, E., was devoted chiefly to specimens of sulphur dioxide for fumigation purposes. The gas liquefied by cold and pressure is contained in cylinders. The exhibit also included a fluid preparation of phenol called "Lozar." In a more or less solid form a special wood fibre is employed for absorbing it which possesses advantages for this purpose. A very comprehensive series of disinfectant preparations the composition of which is based mostly on Sanitas was shown by the Sanitas Co., Limited, of Bethnal-green, London, E. The exhibit included, however, some other disinfectant and antiseptic preparations. The chief advantage of Sanitas is that while it is a distinct and efficient disinfectant it is very agreeable by reason of its pleasant pine-like smell. The exhibit of Messrs. J. Defries and Sons of 147, Houndsditch, London, E.C., afforded an opportunity of demonstrating three interesting and, we may add, scientific appliances. These were several forms of the Pasteur-Chamberland Filter, an illustration of the equifex disinfecting apparatus, and Scurfield's simple ventilation indicator. The last-named instrument affords a quick and fairly accurate way of estimating the carbonic acid in the air, the process being based on the classic method of Pettenkofer. According to the results of experiments quoted by Messrs. Newton, Chambers and Co. of Thorncliffe (near Sheffield) and 331, Gray's Inn-road, London, W.C., Izal is an effective germicide, and it is stated that over 9,000,000 gallons of this fluid have been ordered for the use of the army in South Africa. Medical Izal is said to be four times as powerful as a germicide as absolute phenol and is also said to be non-poisonous and non-corrosive. The exhibit included preparations of Izal such as lint, wool, gauze, lozenges, "perles," &c. Messrs. Major and Co. of Sculcoates, Hull, exhibited chiefly their Eucryl preparations. Eucryl itself is a very agreeable and powerful antiseptic and disinfecting fluid. We have dealt with its composition in the Analytical Records of THE LANCET Laboratory. The Berkefeld Filter Company of 121, Oxford-street, London, W., gave a demonstration of their well-known filters, the tubes of which are composed of a specially prepared *kieselguhr*. The advantage of these filters is that while they are rapid in action they yield a sterile filtrate. Jeyes' disinfectant fluids have now been a long time before the public and on all sides excellent reports have come to hand of their germicidal activity. The exhibit of the company (of 64, Cannon-street, London, E.C.) contained a great number of creolin compounds and preparations.

A variation in the *tout ensemble* of the exhibits just

described is afforded by mineral waters and other beverages, which, moreover, are not without medical interest. For example, the Bellawattee Company, of 244, Oxford-street, London, W., exhibited a great number of patterns of their patent teapot which provides against an excessive amount of tannin entering into the infusion of tea. The device is quite simple and effectual. Stower's lime-juice cordial and clarified lemon-squash were the two specialities exhibited by Messrs. Alexander Riddle and Co., of 36 and 38, Commercial-street, London, E. The wholesomeness of these preparations and their adaptability for the easy production of a beverage are established, the materials used being of the best kind and no objectionable ingredients being added. We have been able to speak in favour of the purity of these preparations in our analytical records, but the case is somewhat overstated, we think, when the manufacturers assert that the cordial "materially assists the digestion and is practically invaluable to dyspeptic dispositions." Specimens representing the various natural mineral waters of Vichy and Carlsbad were shown by Messrs. Ingram and Royle, Limited, of 26, Upper Thames-street, London, E.C. The exhibit also included bottles of Hunyadi Janos, a natural aperient water which was exhaustively dealt with by THE LANCET Special Analytical Commission on Natural Mineral Waters in THE LANCET of Dec. 5th, 1896, p. 1622. Lastly may be added the medicated wines of Messrs. Stephen Smith and Co., of Malmesbury-road, Bow, London, E. These included an excellent coca wine prepared from the leaf and therefore not containing the chemically prepared alkaloid; keystone beef wine; and keystone burgundy—preparations of distinct merit as we have already shown in our analytical columns.

There were also exhibited a selection of objects of interest to the medical man but of a miscellaneous character, as exemplified in the medical books, charts, and diagrams shown by Messrs. John Bale, Sons, and Danielsson, of 83, 85, 87, and 89, Great Titchfield-street, Oxford-street, London, W. Again, several typewriters were exhibited possessing some novelty; amongst these were the instrument of the Oliver Typewriter Co., 43, Poultry, E.C., and that of the Williams Typewriter Co., of 104, Newgate-street, London, E.C. Lastly, the Blickensderfer typewriter attracted some attention, since it may be fitted with a special wheel for writing medical prescriptions. The machine may be inspected at 9, Cheapside, London, E.C. Many of the stalls were devoted to the exhibition of new publications. Amongst the publishers represented were Messrs. Rebman, Limited, of 129, Shaftesbury-avenue, London, W.C., Messrs. John Bale, Sons, and Danielsson, 83, 85, 87, and 89, Great Titchfield-street, Oxford-street, London, W., and the Scientific Press, Limited, of 28 and 29, Southampton-street, Strand, London W.C.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 5473 births and 3748 deaths were registered during the week ending June 9th. The annual rate of mortality in these towns, which had been 18·4 and 17·7 per 1000 in the two preceding weeks, further declined to 16·8 last week. In London the death-rate was 15·9 per 1000, while it averaged 17·5 in the 32 provincial towns. The lowest death-rates in these towns were 8·0 in Birkenhead, 11·4 in Swansea, 12·1 in Derby and in Burnley, and 12·3 in Croydon; the highest rates were 19·9 in Sheffield, 21·3 in Salford, 23·1 in Manchester, and 24·8 in Liverpool. The 3748 deaths in these towns included 386 which were referred to the principal zymotic diseases, against 443 and 423 in the two preceding weeks; of these, 128 resulted from measles, 111 from whooping-cough, 65 from diphtheria, 30 from scarlet fever, 27 from diarrhœa, 24 from "fever" (principally enteric), and one from small-pox. The lowest death-rates from these diseases last week occurred in Norwich, Nottingham, Birkenhead, Huddersfield, and Newcastle; and the highest rates in Cardiff, Derby, Oldham, and Blackburn. The greatest mortality from measles occurred in Bristol, Cardiff, Derby, and Sunderland; from whooping-cough in Liverpool, Manchester, Oldham, and Gateshead; and from diarrhœa in Blackburn. The mortality from scarlet fever and from "fever" showed no marked excess in any of the 33 towns. The 65 deaths from diphtheria included 24 in London, seven in Leeds, six in Leicester, four in Cardiff, and four in Sheffield. One fatal case of small-pox was registered last week in Oldham, but not one in any other of the 33 large towns. There were 11 small-pox patients under treatment in the Metropolitan Asylums Hospitals at the end of the week, against three, five, and seven on the three preceding Saturdays; four new cases were admitted during the week, against three and four in the two preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital on Saturday last, June 9th, was 1754, against 1784 and 1759 at the end of the two preceding weeks; 203 new cases were admitted during the week, against 221, 216, and 194 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had declined from 417 to 266 in the five preceding weeks, rose to 268 last week, but were slightly below the corrected average. The causes of 52, or 1·4 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Cardiff, Nottingham, Bolton, Oldham, and in 10 other smaller towns; the largest proportions of uncertified deaths were registered in Portsmouth, Birmingham, Liverpool, Blackburn, and Hull.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·6 and 18·6 per 1000 in the two preceding weeks, further declined to 18·3 during the week ending June 9th, but exceeded by 1·5 per 1000 the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 13·3 in Paisley and 15·8 in Aberdeen to 19·9 in Glasgow and 21·5 in Greenock. The 564 deaths in these towns included 19 which were referred to measles, 17 to whooping-cough, seven to diarrhœa, six to scarlet fever, five to "fever," and three to diphtheria. In all 57 deaths resulted from these principal zymotic diseases, against 85, 76, and 73 in the three preceding weeks. These 57 deaths were equal to an annual rate of 1·9 per 1000, which was 0·2 per 1000 above the mean rate last week from the same diseases in the 33 large English towns. The deaths from measles, which had been 10 and 16 in the two preceding weeks, further rose last week to 19, of which 14 occurred in Glasgow and four in Edinburgh. The fatal cases of whooping-cough, which had been 36 and 25 in the two preceding weeks, further declined to 17 last week, and included 14 in Glasgow and two in Aberdeen. The deaths from diarrhœa, which had increased from nine to 25 in the four preceding weeks, declined again last week to seven, of which four were registered in Glasgow and two in Dundee. The fatal cases of scarlet fever, which had been seven, three, and one in the three preceding weeks, rose again to six last week and included four in Glasgow and two in Paisley. The deaths referred to different forms of "fever," which had been six, two, and one in the three preceding weeks, rose again last week to five, of which four occurred in Glasgow, where two of the three fatal cases of diphtheria were also registered. The deaths referred to diseases of the respiratory organs in these towns, which had been 84, 94, and 104 in the three preceding weeks, further rose last week to 106, and were 13 in excess of the number in the corresponding period of last year. The causes of 24, or more than 4 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 25·2 and 21·9 per 1000 in the two preceding weeks, rose again to 23·1 during the week ending June 9th. During the past four weeks the death-rate in the city has averaged 23·3 per 1000, the rate during the same period being 16·4 in London and 18·4 in Edinburgh. The 155 deaths belonging to Dublin registered during the week under notice were eight in excess of the number in the preceding week, and included 10 which were referred to the principal zymotic diseases, against nine, five, and three in the three preceding weeks; of these, five resulted from whooping-cough, two from diphtheria, two from diarrhœa, one from "fever," and not one either from small-pox, measles, or scarlet fever. These 10 deaths were equal to an annual rate of 1·5 per 1000, the zymotic death-rate during the same period being 1·6 in London and 1·2 in Edinburgh. The fatal cases of

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MAY, 1900.

(Specially compiled for THE LANCET.)

Sanitary Areas.	Estimated population in the middle of 1900.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of Infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.†	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,589,129	9	1278	1160	1	240	8	20	449	—	3165	7·2	1	299	29	129	230	—	38	—	49	775	1·8	7283	16·6	120
West Districts.																									
Paddington	130,104	—	12	22	—	5	1	—	10	—	50	4·0	—	17	—	4	10	—	—	—	2	33	2·6	222	17·8	135
Kensington	173,603	2	31	31	—	8	—	—	15	—	87	5·2	—	28	—	1	2	—	1	—	3	35	2·1	251	15·1	141
Hammersmith	110,203	—	24	18	—	7	—	1	10	—	60	5·7	—	31	—	2	—	—	2	—	—	35	3·3	190	18·0	139
Fulham	136,383	—	50	53	—	4	1	—	13	—	121	9·3	—	1	1	1	2	—	1	—	1	7	0·5	185	14·1	91
Chelsea	96,715	1	23	22	—	2	—	—	8	—	56	6·0	—	1	—	2	2	—	—	—	2	7	0·8	164	17·7	134
St. George Hanover-square	81,133	1	21	9	—	6	—	—	5	—	42	5·4	—	1	1	1	2	—	1	—	1	7	0·9	96	12·3	107
Westminster	51,667	—	10	10	—	7	—	1	6	—	34	6·9	—	4	—	—	2	—	1	—	—	7	1·4	91	18·4	200
St. James Westminster	21,457	—	5	8	—	—	—	—	2	—	15	7·3	—	1	—	1	—	—	—	—	—	2	1·0	29	14·1	122
North Districts.																									
Marylebone	139,777	2	34	29	—	4	—	—	23	—	92	6·9	1	7	1	4	4	—	—	—	3	20	1·5	261	19·5	117
Hampstead	81,766	—	20	5	—	1	—	1	2	—	29	3·7	—	3	—	—	—	—	—	—	—	3	0·4	80	10·2	63
St. Pancras	245,651	—	43	48	—	20	—	2	24	—	137	5·8	—	19	—	9	12	—	1	—	3	44	1·9	390	16·6	118
Islington	351,541	—	82	64	—	21	—	2	28	—	197	5·8	—	27	4	14	9	—	3	—	1	58	1·7	515	15·3	107
Stoke Newington	35,718	—	10	8	—	1	—	1	3	—	23	6·7	—	—	—	—	2	—	—	—	—	2	0·6	38	11·1	99
Hackney	225,519	—	59	59	—	14	2	3	25	—	162	7·6	—	4	2	8	14	—	2	—	2	32	1·5	289	13·4	101
Central Districts.																									
St. Giles	36,870	—	10	9	—	2	—	—	9	—	30	8·5	—	3	—	1	2	—	—	—	—	6	1·7	72	20·4	87
St. Martin-in-the-Fields	11,885	—	2	1	—	1	—	—	—	—	4	3·5	—	—	—	—	—	—	1	—	—	1	0·9	24	21·1	143
Strand	22,748	—	4	7	—	1	—	—	1	—	13	6·0	—	—	—	2	2	—	—	—	2	6	2·8	41	18·8	71
Holborn	29,188	—	7	8	—	2	1	—	6	—	24	8·6	—	5	—	1	3	—	—	—	1	10	3·6	79	28·2	250
Clerkenwell	66,007	—	15	18	—	2	—	—	8	—	43	6·8	—	10	1	2	8	—	—	—	1	22	3·5	136	21·5	183
St. Luke	40,655	—	9	12	—	3	—	—	7	—	31	8·0	—	7	—	—	1	—	—	—	2	10	2·6	93	23·9	79
City of London	26,922	—	14	11	—	1	—	—	3	—	29	11·2	—	—	1	1	2	—	—	—	—	4	1·5	62	24·0	179
East Districts.																									
Shoreditch	120,641	1	34	29	—	6	—	—	15	—	85	7·3	—	9	2	5	6	—	—	—	3	25	2·2	239	20·7	154
Bethnal Green	128,831	—	36	53	—	7	—	1	16	—	113	9·1	—	12	1	4	11	—	—	—	1	29	2·3	223	18·5	144
Whitechapel	82,220	—	55	32	—	—	—	1	10	—	98	12·4	—	3	1	1	2	—	—	—	1	8	1·0	158	20·0	110
St. George-in-the-East	48,876	1	35	20	—	3	—	1	8	—	68	14·5	—	3	—	3	1	—	1	—	—	8	1·7	85	18·1	83
Limehouse	58,944	—	19	14	—	1	—	—	6	—	40	7·1	—	9	—	2	15	—	—	—	—	26	4·6	129	22·8	181
Mile End Old Town	113,781	1	51	35	—	2	—	—	10	—	99	9·1	—	10	—	2	5	—	—	—	2	19	1·7	206	18·9	115
Poplar	170,968	—	25	41	1	21	1	2	21	—	112	6·8	—	11	—	2	14	—	4	—	—	31	1·9	321	19·6	126
South Districts.																									
St. Saviour Southwark	23,854	—	12	18	—	—	—	—	3	—	33	14·4	—	—	—	5	1	—	—	—	1	7	3·1	57	24·9	234
St. George Southwark	60,597	—	30	24	—	4	—	1	11	—	70	12·0	—	3	1	2	5	—	—	—	2	13	2·2	131	22·5	151
Newington	125,138	—	45	46	—	4	—	—	11	—	106	8·8	—	3	2	9	4	—	2	—	2	22	1·8	219	18·3	142
St. Olave Southwark	10,909	—	3	3	—	—	—	—	1	—	7	6·7	—	—	—	—	1	—	—	—	—	1	1·0	17	16·3	26
Bermondsey	85,920	—	25	45	—	10	—	—	7	—	85	10·3	—	1	1	3	11	—	5	—	1	22	2·7	166	20·1	107
Rotherhithe	41,246	—	5	9	—	5	—	—	2	—	21	5·3	—	5	1	2	4	—	—	—	1	13	3·3	73	18·5	120
Lambeth	312,152	—	77	92	—	13	2	—	20	—	204	6·8	—	10	3	14	13	—	3	—	1	44	1·5	445	14·9	118
Battersea	178,100	—	59	19	—	10	—	—	10	—	98	5·7	—	10	2	2	16	—	4	—	—	34	2·0	250	14·6	109
Wandsworth	217,004	—	62	44	—	11	—	1	19	—	137	6·6	—	17	—	—	2	—	1	—	3	23	1·1	274	13·2	117
Camberwell	268,457	—	66	64	—	5	—	—	22	—	157	6·1	—	7	—	7	14	—	2	—	3	33	1·3	336	13·1	101
Greenwich	184,582	—	57	35	—	11	—	—	28	—	131	7·4	—	10	1	4	15	—	1	—	3	34	1·9	289	16·3	121
Lewisham (excluding Penge)	93,548	—	37	37	—	4	—	—	5	—	83	9·3	—	1	—	3	7	—	1	—	—	12	1·3	129	14·4	103
Woolwich	41,600	—	19	8	—	1	—	—	4	—	32	8·0	—	2	2	—	1	—	—	—	—	5	1·3	84	21·1	157
Lee	40,722	—	8	9	—	5	—	—	3	—	25	6·4	—	—	—	—	2	—	1	—	—	3	0·8	50	12·6	145
Plumstead	65,558	—	32	32	—	2	—	2	9	—	77	12·2	—	4	1	5	1	—	—	—	1	12	1·9	89	14·2	89
Port of London	—	—	1	1	—	3	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including 25 cases of membranous croup.

† Including deaths from membranous croup.

whooping-cough, which had been one, three, and none in the three preceding weeks, rose again to five last week. The two deaths from diphtheria showed an excess over the average of recent weeks. The fatal cases of diarrhœa, which had been two, none, and one in the three preceding weeks, rose to two last week. The mortality from "fever," corresponded with that in the preceding week. The 155 deaths in Dublin last week included 29 of infants under one year of age and 23 of persons aged upwards of 60 years; the deaths of infants were equal to the number recorded in the preceding week, but the deaths of elderly persons showed a considerable decline. Eight inquest cases and four deaths from violence were registered; and 60, or nearly two fifths, of the deaths occurred in public institutions. The causes of 12, or nearly 8 per cent., of the deaths in the city last week were not certified.

VITAL STATISTICS OF LONDON DURING MAY, 1900.

IN the accompanying table will be found complete statistics relating to sickness and mortality in each of the 43 sanitary areas of London. With regard to the notified cases of infectious diseases in the metropolis, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 7·2 per 1000 of the population, estimated at 4,589,129 persons in the middle of the year. In the three preceding months the rates had been 7·0, 6·5, and 6·2 per 1000 respectively. The rates were considerably below the average in Paddington, Kensington, St. George Hanover-square, Hampstead, St. Martin-in-the-Fields, and Rotherhithe; while they showed the largest excess in City of London, Whitechapel, St. George in the East, St. Saviour Southwark, St. George Southwark, and Plumstead sanitary areas. Nine small-pox cases were notified during May, of which two belonged to Kensington, two to Marylebone, and one each to Chelsea, St. George Hanover-square, Shoreditch, St. George-in-the-East, and Mile End Old Town sanitary areas; seven small-pox patients were admitted into the Metropolitan Asylums Hospitals during May, and seven remained under treatment at the end of the month. The prevalence of scarlet fever showed a further slight increase upon that recorded in recent months; among the various sanitary areas this disease was proportionally most prevalent in City of London, Whitechapel, St. George-in-the-East, St. Saviour Southwark, St. George Southwark, and Plumstead. The Metropolitan Asylums Hospitals contained 1735 scarlet fever patients at the end of May, against 1827, 1654, and 1619 at the end of the three preceding months; the weekly admissions averaged 198, against 152, 162, and 174 in the three preceding months. The prevalence of diphtheria showed a marked increase upon that in the preceding month; the proportional prevalence of this disease was greatest in City of London, Bethnal Green, St. George in the East, St. Saviour Southwark, Bermondsey, and Plumstead sanitary areas. There were 1209 diphtheria patients in the Metropolitan Asylums Hospitals at the end of May, against 1402, 1236, and 1131 at the end of the three preceding months; the weekly admissions averaged 172, against 165 148, and 135 in the three preceding months. The prevalence of enteric fever in London showed a continued decrease from that recorded in recent months; among the various sanitary areas this disease was proportionally most prevalent in Westminster, St. Martin in the Fields, Poplar, Bermondsey, Rotherhithe, and Lee. The Metropolitan Asylums Hospitals contained 176 enteric fever patients at the end of May, against 274, 263, and 208 at the end of the three preceding months; the weekly admissions averaged 24, against 40, 36, and 27 in the three preceding months. Erysipelas was proportionally most prevalent in Marylebone, St. Giles Holborn, St. Luke, St. George-in-the-East, and St. George Southwark sanitary areas. The 20 cases of puerperal fever included three in Hackney, and two each in St. Pancras, Islington, Poplar, and Plumstead sanitary areas.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various sanitary areas of the metropolis, the deaths occurring in the public institutions of London having been distributed among the sanitary areas in which the patients had previously resided. During the five weeks ending June 2nd the deaths of 7283 persons belonging to London were registered, equal to an annual rate of 16·6 per 1000, against 20·4, 19·1, and 20·2 in the three preceding months. The lowest death-rates last month in the various sanitary areas were 10·2 in Hampstead, 11·1 in Stoke Newington, 12·3 in St. George Hanover-square, 12·8 in Lee, 13·1 in Camberwell, and 13·2 in Wandsworth; the highest rates were 22·5 in St. George Southwark, 22·8 in Limehouse, 23·9 in St. Luke, 24·0 in City of London, 24·9 in St. Saviour Southwark, and 28·2 in Holborn. During the five weeks of May 775 deaths were referred to the principal zymotic diseases in London; of these, one resulted from small-pox, 299 from measles, 29 from scarlet fever, 129 from diphtheria, 230 from whooping-cough, 38 from enteric fever, and 49 from diarrhœa. These 775 deaths were equal to an annual rate of 1·8 per 1000, against 1·8, 1·7, and 1·8 in the three preceding months. The lowest death-rates from these diseases last month occurred in Fulham, Chelsea, St. George Hanover Square, Hampstead, Stoke Newington, St. Martin-in-the-Fields, and Lee; and the highest rates in Hammersmith, Holborn, Clerkenwell, Limehouse, St. Saviour Southwark, and Rotherhithe sanitary areas. The fatal case of small-pox belonged to Marylebone sanitary area. The 299 deaths from measles were 94 below the average number in the corresponding periods of the ten preceding years; this disease was proportionally most fatal in Kensington, Hammersmith, Holborn, Clerkenwell, St. Luke, and Mile End Old Town sanitary areas. The 29 fatal cases of scarlet fever showed a decline of 47 from the corrected average number; the greatest proportional fatality from this disease occurred in City of London, Shoreditch, St. George Southwark, Newington, Rotherhithe, and Woolwich. The 129 deaths from diphtheria were 55 below the average number in the corresponding periods of the ten preceding years; among the various sanitary areas this disease was proportionally most fatal in Islington, Strand, St. George in the East, St. Saviour Southwark, Newington, and Plumstead. The 230 fatal cases of whooping-cough showed a decline of 86 from the corrected average number; this disease showed the highest proportional fatality in Strand, Holborn, Clerkenwell, Limehouse, Battersea, Bermondsey, and Rotherhithe sanitary areas. The 38 deaths referred to enteric fever were slightly in excess of the average number in the corresponding periods of the ten preceding years; among the various sanitary areas this disease was proportionally most fatal in Westminster, St. Martin in the Fields, St. George in the East, Poplar, Bermondsey, and Battersea. The 49 fatal cases of diarrhœa showed a marked decline from the corrected average number; the greatest proportional fatality from this disease was recorded in Marylebone, Strand, Holborn, St. Luke, Shoreditch, and St. George Southwark sanitary areas. In conclusion, it may be stated that the aggregate mortality from these principal zymotic diseases in London during May was more than 26 per cent. below the average.

Infant mortality in London last month, measured by the proportion of deaths of children under one year of age to registered births, was equal to 120 per 1000. The lowest rates of infant mortality were recorded in Hampstead, St. Giles, Strand, St. Luke, St. George-in-the-East, and St. Olave Southwark sanitary areas; and the highest rates in Westminster, Holborn, Clerkenwell, City of London, Limehouse, and St. Saviour Southwark.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Surgeons: M. H. Knapp to the *Doris* and S. T. Reid to the *Gleaner*.

ROYAL ARMY MEDICAL CORPS.

Major James McM. Bolster, from half-pay, to be Major, with precedence next below C. J. Addison, vice T. A. P. Marsh, deceased. The undermentioned Surgeons on probation to be Lieutenants:—Charles Henry Carr, Edmund Bennett, Francis Pius Lauder, Arthur Charles Adderley, John Tobin, George Edward Leary, and Herbert Ernest Weston. Lieutenant-Colonel Henry J. Michael retires on retired pay in consequence of ill-health. Surgeon-Captain A. Mifsud, Royal Malta Artillery, is granted the temporary rank of Captain whilst serving in Egypt.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain Henry John MacKay, 2nd Volunteer Battalion the Wiltshire Regiment, to be Surgeon-Captain; Surgeon-Captain W. J. Harnett to be Surgeon-Major.

VOLUNTEER MEDICAL STAFF CORPS.

The Woolwich Companies: Mowbray Taylor to be Surgeon-Lieutenant.

VOLUNTEER CORPS.

Artillery: 2nd Hampshire (Southern Division, Royal Garrison Artillery): Herbert Fox to be Surgeon-Lieutenant. *Rifle:* 1st Dumbartonshire: William Buchan Armstrong to be Surgeon-Lieutenant. 1st Volunteer Battalion the Highland Light Infantry: Surgeon-Lieutenant P. F. Shaw to be Surgeon-Captain. 2nd Volunteer Battalion the Worcestershire Regiment: Herbert Bree Emerson to be Surgeon-Lieutenant. 2nd Volunteer Battalion the East Yorkshire Regiment: Surgeon-Lieutenant H. J. C. Godfrey resigns his commission.

VITAL STATISTICS OF THE GERMAN NAVY.

The statistical information contained in the subjoined table has been compiled from the official returns issued by the medical department of the Imperial German Navy.

From April 1st to March 31st.	1895-96.	1896-97.
Average strength	21,477	21,675
Admitted	per 1000	
	847·6	860·6
Discharged to duty	,, ,,	
	706·8	716·8
Died in hospital	,, ,,	
	1·4	0·9
Invalided	,, ,,	
	116·5	115·5
Remaining	,, ,,	
	22·9	27·4
Number constantly sick	,, ,,	
	37·2	39·8
Average duration of cases	days	
	14·5	15·3
Total death-rate	per 1000	
	4·8	2·9
General diseases	,, ,,	
	61·3	64·9
Infectious ,,	,, ,,	
	26·4	29·9
,, ,, Foreign Service	,, ,, *	
	98·0	101·5
Infectious diseases, Home Waters	,, ,, *	
	5·0	5·7
Infectious diseases, African Stations	,, ,, *	
	268·3	368·3
Infectious diseases, Pacific Stations	,, ,, *	
	205·0	457·4
Infectious diseases, enteric fever	,, ,,	
	0·5	1·8

	1895-97.
Infectious diseases, dysentery ,, ,,	0·4
,, ,, intermittent fever ,, ,,	23·5
Infectious diseases, influenza ,, ,,	10·1
,, ,, phthisis pulmonalis ,, ,,	2·9
Infectious diseases, hæmoptysis ,, ,,	0·7
Diseases of respiratory system ,, ,,	100·2
,, circulatory ,, ,, ,,	26·7
,, digestive ,, ,, ,,	123·1
Ophthalmic diseases ,, ,,	38·9
Venereal ,, ,, ,, ,,	133·0

* Local strength.

The deaths from disease during the two years were caused as follows: enteric fever, 8; dysentery, 3; intermittent fever, 4; influenza, 3; sunstroke, 3; pneumonia, 10; pleurisy, 6; phthisis pulmonalis, 13; circulatory affections, 6; other diseases, 24; total 80. The deaths from accidents amounted to 72, and there were 15 suicides—11 occurring in the commissioned ranks. Throughout the biennium the navy remained free from cholera, yellow fever, and small-pox; the immunity from the last-named scourge being unquestionably due to careful revaccination. The considerable prevalence of venereal affections is ascribed to the absence of supervision at foreign ports, especially those under English control. In conclusion, Dr. Wilm points with pride to the fact that during the period under report there were less sickness and mortality in the German navy than in any other. The only blot seems to have been a local but severe outbreak of follicular conjunctivitis which was due to the incautious acceptance of two recruits from Western Prussia who were suffering from granular lids.

TRANSVAAL WAR NOTES.

A field hospital, composed entirely of volunteers, has embarked on the *Tagus* for duty with the Rhodesian field force. The *Daily Telegraph* states that "this is the first mounted field hospital sent out."

With the object of relieving the pressure on the accommodation at the Military Hospital, Devonport, caused by the frequent arrivals of the sick and wounded soldiers from South Africa, a field hospital of 50 beds has been established at Staddon Heights, Plymouth, under the charge of Lieutenant-Colonel J. W. Belcher, R.A.M.C.

Of the 300 invalid soldiers who arrived at the Royal Military Hospital a fortnight ago less than 20 now remain, the rest having been discharged on furlough. On June 6th another party of over 200 arrived under the medical charge of Civil Surgeon Blackiston.

The General of Communications, Cape Town reports that Captain Smithson, R.A.M.C., was discharged from hospital for duty during the week ending May 27th

THE ROYAL ALBERT HOSPITAL, DEVONPORT.

On June 9th Princess Henry of Battenberg laid the foundation stone of the new Nurses' Home and other buildings of the Royal Albert Hospital, Devonport. At the hospital gate Her Royal Highness was received by members of the Reception Committee, which included Lord St. Levan, Admiral Cardale, and Mr. J. May and Mr. T. Leah, who represented the medical staff. The Royal Albert Hospital, which has been doing a most useful work for nearly 40 years, was named after the late Prince Consort by his permission, and he expressed a wish to lay the foundation stone, but unfortunately His Royal Highness died shortly after his desire was made known.

TRANSVAAL WAR CASUALTIES.

The following, attached to the Royal Army Medical Corps, are reported seriously ill at Kroonstad:—Civil Surgeon R. W. Jameson and Civil Surgeon Robertson.

Civil Surgeon H. Bryant, R.A.M.C., died from enteric fever at Bloemfontein on June 7th.

Major Hathaway, R.A.M.C., has been severely wounded in the recent operations near Pretoria.

In connexion with the scheme for the introduction into barracks in India of punkah-pulling by mechanical agency an additional sum of Rs.40,000 has been sanctioned, and the Government of India has called for a full report at the close of the hot weather on the various systems tried.

Correspondence.

"Audi alteram partem."

THE CANNON-STREET HOTEL MEETING AND DR. GLOVER.

To the Editors of THE LANCET.

SIRS,—With the permission of the chairman of the Beckenham and Penge Medical Society I forward the following correspondence for publication. Trusting you will kindly find room for it,

I am, Sirs, yours faithfully,

J. G. GLOVER.

BECKENHAM AND PENGE MEDICAL SOCIETY.

Oakwood-avenue, Beckenham, June 6th, 1900.

DEAR DR. GLOVER,—At a recent meeting of the Beckenham and Penge Medical Society Dr. Sturges, who was present as one of the delegates of the society at the meeting held at the Cannon-street Hotel to protest against the Midwives Bill at present before Parliament, reported what had taken place at that meeting and referred in terms of strong disapproval to the general management of the meeting and in particular to the motion which was brought forward by Dr. Lorimer Hart with reference to yourself just before the close of the meeting when only a few gentlemen were present. This society assisted the Corporate and Medical Reform Association and other societies in organising the Cannon-street meeting and our delegates went prepared to submit some very carefully-considered alterations in the Midwives Bill which they hoped might render it a useful measure and one which would safeguard the public and be acceptable to the general practitioner. In consequence of the manner in which the meeting was conducted, the

Beckenham and Penge Medical Society have under consideration the desirability of severing their connexion with the Corporate and Medical Reform Association, and this they will doubtless do at their next general meeting. Meanwhile, I am directed to express to you the deep regret we all feel at the action taken at the meeting with regard to yourself and to assure you of our continued confidence and esteem.

I remain, dear Dr. Glover, yours very truly,
F. ALEX. BARTON, Honorary Secretary.

25, Highbury-place, N., June 8th, 1900.

DEAR MR. BARTON,—I am much obliged to you and your society for the expression of your views touching the Cannon-street Hotel meeting and its action towards myself. It is impossible that we should agree on all details of a question so complicated as that of midwives, but I believe the agreement is deeper than is thought, and it will be much promoted by generously construing each other's views of the best way to attain the end we all aim at—the saving of the life of poor lying-in women and securing for all serious midwifery the advantage of medical attendance. Kindly convey to your society my best thanks and believe me,

Yours very truly,
J. G. GLOVER.

F. Alex. Barton, Esq., B.A., L.R.C.P. Lond., &c.

THE TREATMENT OF RECENT SPRAINS AND DISLOCATIONS.

To the Editors of THE LANCET.

SIRS,—I am pleased that such an eminent authority as Mr. W. H. Bennett[1] has corroborated the soundness of the treatment of recent dislocations and sprains which I advocated in THE LANCET in 1898.[2] For over 10 years I have treated those and similar lesions by massage and movement, both active and passive, and I have never once had cause to regret my actions. My chief reason for writing to you two years ago, as it is now, was to try to influence medical men to treat such lesions in a way that weakness and stiffness could not remain. It is a notorious fact that bonesetters make their living and their widespread reputations by such cases falling into their hands. Since I have treated my cases in the way which I described in THE LANCET two years ago I have never had the annoyance of an irregular practitioner interfering with any of my uncompleted cases.

I am, Sirs, yours faithfully,
WM. DOIG, M.D. Edin.

Galashiels, N.B., June 9th, 1900.

"ON THE RELATIVE VALUE OF SYMPTOMS OF ACUTE PERITONITIS."

To the Editors of THE LANCET.

SIRS,—I have read Mr. Stanmore Bishop's admirable article on the Relative Value of Symptoms of Acute Peritonitis, published in THE LANCET of June 9th, and should like to endorse almost all that he has written. There are the very widest differences of opinion among practitioners as to the presence or absence of acute peritonitis in cases in which interference is required; and the teaching almost deserves the term which Mr. Stanmore Bishop has applied to it. But I fear even muscular rigidity is not an absolute criterion. It is scarcely more certain than the rest. I have watched throughout a case of acute septic peritonitis which proved fatal within five days in which the abdomen was from first to last perfectly soft, without a trace of muscular rigidity. And if not characteristic muscular rigidity, at least a very close imitation of it is often present in cases of abdominal cramp in which there is no suspicion of inflammation. There is, in fact, no single characteristic symptom of acute peritonitis which is present invariably in all cases alike. All of them are wanting sometimes, and the sooner this fact is recognised the more readily will the diagnosis be made. Muscular rigidity is one of the most constant, but its constancy is not absolute.

I am, Sirs, yours faithfully,
Wimpole-street, W., June 11th, 1900. C. MANSELL MOULLIN.

[1] THE LANCET, June 2nd, 1900, p. 1569.
[2] THE LANCET, Feb. 2nd, 1898, p. 468.

MEAT-SUPPLY OF CARDIFF.—The Cardiff Health Committee on June 1st considered the allegation that inferior meat was sold in the local market. A sub-committee had been appointed to go into the whole question, and after a thorough investigation they agreed with the statements and recommended the appointment of an additional inspector who should be a practical butcher thoroughly conversant with the trade. After a considerable discussion the Health Committee passed a resolution requesting the medical officer of health to draw up a list of the duties necessary to ensure efficient inspection.

THE UNIVERSAL EXHIBITION AT PARIS.

(FROM OUR SPECIAL CORRESPONDENT.)

An Unparalleled Number of Visitors.—Order Reigns.—The Exhibition is Ready.

To have visited the Exhibition when it opened in April, and even during the earlier part of May, and then to return again at the commencement of June is to experience sensations that can be compared with the delightful feeling of freshness and calm that follow after a summer storm. The wagons, carts, railway trucks; the drivers, porters, labourers, masons, and workmen, have disappeared. The hurry and bustle are over. The loud, and sometimes angry, cries of those who were struggling to hasten on the work are now replaced by the satisfied voices, the murmurs of admiration from the vast crowds of spell-bound visitors. The sharp stones that cut the feet, the deep ruts made by heavy carts, the pitfalls, the planks and rafters, the empty packing-cases with their sharp protruding nails, have all been removed and safe, dry, and smooth gravel walks greet us on all sides. To the clouds of white chalk and plaster dust has succeeded the sweet air from numerous beds of beautiful flowers or artistically devised clusters of trees and shrubbery. Here and there large palm trees wave their plume like branches as if to salute the visitors. The air comes fresh and clear from the well-watered verdure and the loudest noises are those of laughter, exclamations of delight and surprise, or of some strange music from a gipsy band or a group of Orientals, negroes and Arabs, rhythmically beating their tomtoms or giving weird expression on deep-toned flutes to an indefinable melody that recalls the nomadic life of the dwellers of the desert. In a word, the Exhibition is now complete. Here and there may be belated exhibitors whose installations are not yet quite in order, but these are so few, far between, and exceptional that they are but as minute specks on the vast and magnificent picture that invites the admiration of the whole world. The promise made has been fully kept. The Exhibition has been completed earlier in the year than any of the preceding universal exhibitions. Nor have the public been slow to acknowledge this fact. Already the number of admissions has beaten all previous records, for there were more than half a million visitors both on Whit-Sunday and on Whit-Monday; and since then even on the ordinary weekdays the admissions have exceeded 200,000. Indeed, it is anticipated that in the height of the season the crowds will exceed the limits of safety. Consequently all the entrances have been connected by telephone to a central office. Here, hour by hour, messages are received from each gate, additions made, and a record is kept as to the number of people actually within the Exhibition. Should this number exceed a certain fixed maximum then the gates will be closed for a while so as to prevent too great a crush. This is a wise and necessary precaution. Even as matters now stand, those who are not satisfied with merely walking round but want to examine minutely some of the exhibits had better devote the morning to serious study. They will then have elbow-room and better opportunities for talking to the exhibitors and for obtaining information. This doubtless involves lunching within the Exhibition, where the restaurants are naturally a good deal dearer than in the town; but as the admission ticket is sold at a discount and can now be obtained for 6*d*., it is no great loss to leave the Exhibition for meals and there are numerous cheap restaurants outside. Wealth is more evenly distributed in France, there are not so many large fortunes as in England, therefore the greater part of the catering is done for that very numerous class of thrifty people who know how to live well for a small expenditure. It is a happy country for those who possess a modest competency and the fear of spending too much need not deter such from visiting the Paris Exhibition.

THE PAVILION OF THE TOWN OF PARIS.

The more frequent the visits to the Exhibition and the more careful the examination of the wonders displayed, the more hopeless the task of description becomes. The details are of such absorbing interest and of such widespread importance that the difficulty is to know what to leave out, what to cut down to a few sentences—in fact, to use a Parliamentary idiom, how best to massacre the innocents. Take as an

example the exhibits of the town of Paris. We are all the guests of this beautiful capital and naturally anxious to know how the town is governed. Besides, it is the second largest metropolis in Europe and certainly the most beautiful and attractive, so that there must be much to learn concerning its methods of administration. Finally, the municipal authorities have organised a unique exhibition where every detail of their administrative work is set forth in a most graphic, realistic, and intelligible manner. But it is not a letter or two, it is a volume, and a very big and a very useful volume, that could be written on this one single exhibit. The pavilion of the town of Paris is situated on the right bank of the Seine, close to the Pont des Invalides, and faces the magnificent Italian Palace that is on the opposite side of the river. Entering by the door nearest to the bridge, the first rooms to the left contain exhibits that relate to the history of Paris. There are quaint edicts dating back some centuries and concerning the government of the town, pictures of old Paris, and some remarkable historical curiosities, including the cradle of the King of Rome, lent by the Emperor of Austria because it was the work of the celebrated Parisian bronze-chasers Odiot and Thomire. On the right hand side of the entrance there are first of all the exhibits of the Paris Municipal Laboratory, where, however, the Ravachol bombs, explosive sardine boxes, and other anarchists' contrivances are not shown; yet this laboratory is best known to the general public as the place where suspicious parcels are examined in case they contain explosives. But, needless to say, the real work of the laboratory is of a much more serious character, though it attracts less public attention. Indeed, it has always been a source of trouble with sanitary reformers that the public will take the greatest interest in an explosion of dynamite that as often as not does no harm at all, while an outbreak of disease which brings many thousands prematurely to the grave fails to awaken public attention. Dynamitards provide more sensational news for the papers than the studies of bacteriologists; but in this Exhibition all honour is rendered to the latter and nothing is said about the former. The Paris Municipal Laboratory is proud of its bacteriological researches, and for this purpose has a special department called the "Salle de Pasteur." It shows photographs of colonies of the bacillus coli and isolated bacilli, of the typhoid bacillus, micrographic photographic apparatus, Dr. Roux's culture stove, and other aids to bacteriology. M. Ogier has an apparatus for taking samples of water. The bottle stands on a heavy slab of lead, to which it is held by a brass frame, and can be used without touching with the hand while taking the sample. Further, all the apparatus used for testing and analysing tea, coffee, chicory, milk, alcohol, &c., is displayed. In a word, the visitor can see the applications of chemistry and bacteriology to the preservation of water- and food-supplies.

The next room contains the exhibits of the municipal veterinary department with very fine wax models of diseased meat, an exhibit which cannot fail to alarm a good many people and which prompted a visitor to exclaim somewhat appropriately, "Almost thou persuadest me to become a vegetarian." Perhaps, also, as a warning to the frequenters of cheap restaurants who have a weakness for *civet de lapin*, there are side by side the skeletons of a rabbit and a cat. With the exception of the heads the likeness between the two suggests how easy it would be to substitute the one for the other. Another department deals with the vegetable supply of Paris and there are maps showing from what parts of the country the various vegetables are obtained, together with pictures of the mushrooms that are edible and those that are poisonous. This exhibit includes the methods for detecting the effects of poisonous alimentary substances. Here is shown the apparatus devised by Professor Marey to record cardiac movements and a pump where a vacuum is produced by a fall of mercury, which is used to extract gases from the blood. The adjoining room or division is allotted to the demography of Paris where the growth of the population may be studied; and by its side there is a very large division containing every sort of information, plans and drawings concerning the domains of the town, its parks and gardens, its district town halls, the lands which it has bought in the provinces for asylums, convalescent homes, &c.

The next department, though most serious and technical, is so arranged that it does not fail to attract the general public and serves as a useful object lesson. It deals with the hospitals which, with but a few exceptions, are all under the management of the municipality. Here we find a little scenic effect. It consists of an old-fashioned four-poster bed, such as was employed at the old Hôtel Dieu a hundred years ago, and in which no less than four patients had to sleep. These patients are represented by life-sized lay figures. Three are in bed, one with his head at the bottom of the bed and his feet up by the faces of the other two patients. The fourth patient is sitting at the foot of the bed, so that the visitors may see the style of clothes that used to be provided in the hospitals. Indeed, these clothes are about the only satisfactory thing shown. By way of warming and ventilating there is a huge earthenware and portable receptacle that looks like an urn. Inside this some sort of smokeless fuel, presumably charcoal, used to be burnt, and it was brought close to the bed of the patients, thus helping still further to poison the atmosphere. The bed, bed-table, chairs, &c., are of wood. Immediately opposite there is a modern iron hospital bed and aseptic furniture such as is now used in the hospitals. In no case is wood employed, but only enamelled iron or hardware. Then there are the spittoons with a cone-shaped inner pan dipping into water which contains in solution some antiseptic. There is also a cylinder which can hold 14 spittoons. Below by means of a gas-burner water is warmed. There is a safety valve on one side, a thermometer on the other, and the steam generated disinfects the contents. These are now used in nearly all the hospitals though but a short time ago they were employed only in cases of phthisis. In another corner there are samples of the wheat, flour, &c., employed at the municipal bakery where the bread for all the hospitals is made. Next to this is a compartment which is fitted up more like a small drawing-room. This contains exhibits from the archives of the Public Assistance, a term which comprises poor relief, hospitals, and asylums. On the walls are several oil-paintings and these are the portraits of some of the best-known philanthropical benefactors. Then there are a number of documents, some parchment manuscripts illustrating former systems of poor relief, and a very fine illuminated mass book used in the hospital chapels. Round this little drawing-room there is all that relates to the care of infants and little children, notably those who are abandoned by their parents. There are models of hospitals for children, maternity hospitals, and specimen baby incubators. The latter are more useful as historical records, for they are very inferior to the more modern and improved types. There is also a glass partition that can be built up round a cot, so as to isolate the patient from the rest of the ward, and yet the patient remains visible from the ward. By the side of the kits provided for abandoned children there is a collection of strange tokens left with the children so that they may be ultimately recognised and reclaimed. Each child must wear up to the age of eight years a bead necklace to which a small medal is attached bearing a number. This number corresponds with the entry made in the book that records all that is known about the child. In frames there are diagrams and statistics setting forth, for instance, that while the number of children receiving public assistance in 1848 amounted to 13,000, 50 years later this help was extended to 28,000 children. Then come tables of the average number of children abandoned at the Hospice des Enfants Trouvés in periods of five years. The highest figure was 6800 and this dates back as far as the years 1770–74. In spite of the great increase of population there were only 4700 children thus abandoned from 1893 to 1898. During this century the maximum of abandoned children was 5803 in 1831, and the minimum was 2260 in 1876. Interspersed in different rooms are large glass cases containing elegant and elaborate costumes for ladies and other articles of clothing, embroidery, &c., all made by these abandoned children or other inmates of municipal asylums. There are likewise plans and drawings of various sanatoria, notably that of Hendaye for "scrofulous" children, and a very interesting and large album containing drawings and x ray photographs showing the results attained at Berck-sur-Mer in the treatment of Pott's disease. These were collected by Dr. V. Ménard, the chief surgeon in charge of this great establishment, where there are 710 beds for children needing sea air and sea bathing.

The next compartment is devoted to the meteorological work done by the city and in the centre there is a plan of Paris with a large number of pins so placed as to indicate

the whereabouts of the meteorological stations established in the capital. Attached to this service there is a bacteriological department which systematically and periodically tests and records the amount of microbes found in the atmosphere of the town. At the same time the air is analysed for ozone and for carbonic acid and the apparatus used is shown. Indeed, it is working in this section with the result that while no ozone has been found there is often an excess of carbonic acid. On the walls there are diagrams that represent an immense amount of labour. One gives per season, another per month, the meteorological variations recorded during the last 100 years. Below in the same columns are the variations in the prevailing diseases. Naturally this latter phase of the work is more ample and better classified during the latter part of the century. Still, such information as is available so as to establish the relationship between climate and disease is there, and all on the one chart. The next compartment might be called the municipal business department. It represents the money-realising services controlled by the municipality, such as the public markets, the omnibus lines, the Bercy wine depôt, the cemeteries, the museums, historical monuments, and the like. After that we come to the inspection of the habitation and its sanitary control. Here are models of the disinfecting stations which show how carefully the infected side is separated from the other side and how the attendants purify their uniforms, change all their clothes, and take a douche before they are allowed to go from one side to the other and mix with the general population. Dummy figures represent the attendants in their uniforms and also that worn by the nurses who help to remove the fever cases to the isolation hospitals. On the walls there are diagrams showing the prevalence of various contagious and infectious diseases in different parts of the town and also the quarters where it is necessary to disinfect most frequently. Finally, there are specimens of different clothing materials before and after disinfection. This is an important room for English visitors inasmuch as the French were much behind the English in practising disinfection, but now that it has become the custom their methods and their precautions are more minute and perfect than is usually the case in England. There is consequently a good deal to be learnt here. The next compartment indicates what has been done in organising relief by means of work—that is, in places where, under certain conditions, some sort of work is given and relief is granted when the task has been accomplished. This is a new and interesting institution founded so as to prevent the pauperisation of the destitute. This brings the visitor to the end of the right-hand side of the oblong pavilion of the City of Paris. There still remain the centre, the other side, and the galleries above. The questions of road surveying, drainage, sewage farms, water, gas, electric light, pneumatic motive power, domestic drainage, police, technical and other schools, primary education, &c., have still to be dealt with. Thus it will be seen what large and important exhibits are comprised in this one pavilion, and when from its balconies the visitor looks out on the miles and miles of Exhibition ground, thickly studded with other such pavilions, palaces, and enormous buildings, and thinks that they all contain objects of beauty and of interest, it does not seem like an exhibition but an entire world that is stretched out before him.

Paris, June 10th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Ravages of Famine and Cholera.—The Decline of Plague.—More Plague Rules.

THE enormous area of the famine and the terrible ravages of cholera have put all interest in the plague quite in the background. Although the total numbers under famine relief have not increased much during the past week, nothing could surpass the heartrending accounts of distress which are arriving at Simla from official and non-official sources. In some of the famine districts the mortality from cholera is appalling. In some places the natives refuse all outside assistance and they believe cholera to be a demon who is to be avoided by means of exorcisms and *poojahs* (prayers). At Bhagalpore the medical men tried to purify the wells, but there was such a row about it that they had to desist. As has been repeatedly recorded before, where cholera and plague are concerned ignorance and fear render the natives heartless In some places when a member of the family is attacked by the disease he or she is shut up in the house with a pitcher of water and left to die, while the rest—it may be parents, sister, wife, or husband—run away to avoid the infection. They may return to drag the corpse out of the hut and leave it in the open field to be food for the pariah dogs or the carrion birds. Help or sympathy is utterly wanting. In other places, again, groups may be seen lying beneath the trees, some dead and many dying. No attempt is made to remove the dead. The people have simply sat down there to die and they wait for death.

In view of this widespread and terrible distress it is satisfactory to find that plague is decreasing. The plague mortality throughout India last week was only 1214, as compared with the 1566 deaths which occurred the week before. Calcutta reported 170 deaths; Bombay city 342 deaths; Karachi 139 deaths; and Aden 59 deaths. With the satisfactory decline of plague it is astonishing to hear that the following addition has been made to the plague regulations in Bengal: "In any case in which the subdivisional magistrate or health officer thinks fit he is authorised to isolate the village or part of the village in which a case of plague is believed to have occurred by cordons, patrols, or in such other manner as he may think expedient. ..... No inmate of such village or part of a village shall leave the same or hold any communication with any other persons, and no other persons shall enter the same," &c. When it is known that the present Lieutenant-Governor avoids anything like compulsion in enforcing any of the existing regulations it will be obvious that this will be, as many other rules are, practically a dead letter. The Mahomedans in Benares met on May 11th and resolved to memorialise the Government against the plague rules to be introduced in the city. They have just discovered that they are contrary to the words of the Prophet. It is at least curious that this has not been noticed before. If it has been, however, I have not heard anything about it.

May 17th.

PLAGUE IN AUSTRALIA.

(FROM A SPECIAL CORRESPONDENT.)

THE returns of plague in Sydney for the week ending April 28th are as follows: Remaining at the beginning of the week, 70; admitted, 27; died, seven; remaining at the end of the week, 76. The total cases are now 156 and the total deaths are 53; the number discharged recovered is 27. Total "contacts" isolated, 924; "contacts" remaining, 260; cases among "contacts," five.

There is little of interest to record beyond the figures given above, only the number of cases has again approached the highest experienced in any preceding week. The rat-killing crusade hardly flourishes, and, indeed, the prevention of plague, in so far as it depends on destruction of rats, begins to appear impossible. It has been proposed that the ancient sport of ratting should be revived; it is a more hopeful suggestion than many others. In the meantime the capitation fee has been raised to 6*d*. Tubes containing cultures of some bacterium said to be capable of causing an infectious disease among rats have just been received from the Pasteur Institute; it was sent for on the independent testimony of an observer who, after watching its effects, felt sure that such an epidemic had been so caused. It is believed to be Danysz's microbe, but unfortunately has been forwarded accompanied only by those circulars which have been printed for information of the laity. However, it will not take very long to find out its characters and whether it is (as alleged) harmless to domestic animals, &c. The bacillus typhi murium certainly has not in this country the powers ascribed to it and, on the other hand, is fatal to many small birds at all events. It kills only the rats which eat food infected with it; very soon the whole colony becomes frightened and decamps, but no spreading illness is set up by it. This was ascertained in the laboratories of the department more than two years ago with the approach of plague in mind and has been checked by repeated experiments in the

field conducted under circumstances very favourable to observation. In all probability the speaker at the Berlin Conference on plague who suggested that rats especially disliked sulphurous acid because certain factories where water containing this body was constantly present were free from them, was right in his inference. This has long been known here and the practical use made of the knowledge during several years past has been the following. In fumigating ships for the purpose of destroying rats the quarantine staff are accustomed to burn quite small quantities of sulphur in the upper parts for the purpose of driving the rats into the holds and bilges. Retreat being then prevented they are very easily killed by burning more sulphur in the proportion of about three pounds per 1000 cubic feet. Unfortunately, sulphur damages many kinds of cargo, such as sugar, coffee, tea, &c. Still, those who suggest the substitution of carbon dioxide little understand the difficulties or the uses of sulphur. In attempting to prevent the introduction of plague it is absolutely essential that an island should be available on which cargoes might be landed for destruction of rats in them and while the nearly empty holds are fumigated. For obvious reasons cargo could not safely be landed from suspected ships on the mainland; and, indeed, the island should be a small one. But, as regards infected cities, if the plague does not itself kill off the rats how can any other communicable disease be expected to do it? The approach from France of a present of Yersin's serum, heralded with much circumstance, was anxiously regarded. The parcel has now come to hand and has been obligingly presented by the Consul-General, through the hands of the representative of the Pasteur Institute at Sydney. It consists of 120 cubic centimetres of serum and the equivalent of 10 cubic centimetres in dry form. These are very interesting exhibits and now occupy a place of honour on the shelves of the laboratory museum. The cleansing of portions of the city proceeds apace. A good enough thing in itself, it has no effect on the progress of the epidemic. Those who are of opinion that the virus can become localised in the soil will doubtless give it greater value than does the present writer. In other respects it is good exactly as far as it has gone. It is an attempt to repair in a hurry the effects of long neglect, and unless there is reform in the attitude of local authorities towards the health laws and the organisation of which the foundations have been laid by the department, in a few weeks the state of affairs must become as bad as it was before the cleansing. There are signs of an awakening, however. To provide machinery and to see it utterly neglected—to find the central health authority regarded as a local authority and expected to do the work of local authorities in every part of this extensive country—has been a disappointing and even an enraging situation. But epidemics are the sanitarian's opportunity and this one will yield its harvest in due time no doubt.

April 29th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Annual Report of the Medical Officer of Health of Liverpool for 1899.

THE report on the health of the city of Liverpool during the year 1899 by Dr. E. W. Hope, the medical officer of health, is an elaborate octavo volume of 234 pages. It is illustrated with a large map of the city and a diagram showing the birth-rate and death-rate in each of the districts of the city during 1899, together with the number of deaths of infants under one year out of every 1000 born and the estimated population per acre, excluding docks, quays, &c. The figures representing these four rates are printed in different colours, whereby comparisons of the corresponding rates in the 11 districts can be readily made. At the foot of this diagram is shown the birth-rate of the whole city during 1899, which was 33·6 per 1000 of the inhabitants, and the death-rate, which was 24·3 per 1000. The area of the city comprises 20½ square miles with an estimated population of 668,645 persons. The death-rate varied widely in different districts; the lowest death rate was in the Sefton Park district, where it was 10·1 per 1000. The highest was in the Exchange district, where it was 38·7 per 1000. An exceptionally large proportion of deaths occurred in workhouses and hospitals. The death-rate was higher by 0·9 per 1000 than in the preceding year, a fact attributed mainly to the prevalence of influenza which accounted for 203 deaths; but influenza was also associated with a large number of cases of fatal illness involving chiefly the respiratory system. A regrettable feature of the report was the increase in the number of deaths from excessive drinking. Deaths from measles and whooping-cough amongst children were especially deplored and caused 321 deaths and 314 deaths respectively. Dr. Hope again drew attention to the limitation of hospital accommodation; no provision had yet been made for measles and whooping-cough, whilst that for diphtheria was wholly inadequate. An interesting feature of the report was the increasing demand for accommodation in the city infectious hospitals. The present number of beds available for the various forms of infectious sickness is 480. Of these 37 are apportioned to small-pox cases, 20 to typhus fever, 75 to typhoid fever, 288 to scarlet fever, 30 to diphtheria, whilst 30 beds had to be kept for isolation purposes. Plans had been approved by the Local Government Board for the erection of small-pox wards for the accommodation of 44 patients at Fazakerley. Dr. Hope showed that at the lowest computation, based upon a wide experience and embodied in the recommendations of the Local Government Board, Liverpool requires a minimum of 650 beds for ordinary infectious sickness and 100 beds for small-pox. Possibly the recent outbreak of small-pox at the Liverpool Workhouse, which is now happily subsiding, may impress the Health Committee with the necessity for an increase in the number of beds for that disease. In a large seaport like Liverpool, with its extensive immigrant population, the dangers of infection from foreign ports cannot be over-estimated. There has been recorded in THE LANCET of May 26th and June 2nd the importation of a case of small-pox at Queenborough from Russia which found its way to Stalybridge, leading to deplorable results. It is to be hoped that a better supervision is exercised in Liverpool over ships arriving from the Continent; at the same time it would be always possible for an individual in the incubative stage of small-pox to pass muster even at that port, hence the necessity for an ample provision of beds in case of an outbreak of the disease in Liverpool. The steady decline in every form of tuberculosis is a satisfactory proof of the progress of sanitation in Liverpool. The report emphasised the fact that not only had every form of the disease diminished but at every age-period there had been a marked decline in the mortality from this cause; especially had this been the case in the earlier years of life, which was of the first importance. There had been a great increase in the number of references to and from the school board authorities chiefly relating to children who had come from infected houses and who were attending school. Special and systematic visits were made to courts and alleys with the object of ensuring the cleanliness of the domestic offices and the surfaces of the courts. Another satisfactory feature was the diminution in the number of courts and alleys owing to the demolition of low-class property for the extension of business premises or to the removal of insanitary property by the Insanitary Property and Artizans' Dwellings Committee. During the last nine years 733 courts had been demolished. An unsatisfactory feature of the report was the continuance of smoke nuisances to a very serious extent in spite of the infliction of heavy fines. The onerous and responsible work connected with the ambulance and disinfecting departments is fully described in the report and reflects much credit upon the respective staffs. The growing practice of the use of preservatives in the food-supply had been a matter of grave concern to the health authorities. Some of the preservatives under certain conditions had a poisonous effect. The total number of samples taken for chemical analysis was 1522, and the total number taken for bacteriological analysis reached 505. The work of the bacteriologist comprised (1) the examination of foodstuffs of various kinds; (2) regular examinations of water supplied to the city; (3) examinations into suspected cases of rabies, anthrax, glanders, &c.; (4) examinations for diagnostic purposes in suspected cases of diphtheria, typhoid fever, tuberculous sputa, &c.; and (5) special investigations, including the condition of the artificial foods supplied to infants giving rise to summer diarrhœa. The report also deals with the milk-supply to the city much on the same lines as last year, but pointing out that the Health Committee are seeking powers to still further safeguard the importation of milk into the city. The difficulties in the

way of re-housing persons displaced by the demolition of insanitary property, to which reference has been made in a former issue of THE LANCET, are increasing owing to the paucity of empty houses in the vicinity. Allusion is made in the report to the gratifying results which had accrued from the provision of public baths and wash-houses, which had been largely used by the poor of the city. For the purpose of carrying out the requirements of the various sanitary Acts of Parliament and the orders, by-laws, and regulations made thereunder, the staff of the medical officer of health's department consisted of 121 persons, comprising 95 inspectors and superintendents, 21 permanent clerical officials, three notice servers, and one temporary assistant. In every case officers are selected for these positions whose previous training and occupations had been such as to fit them for the special duties which they are called upon to discharge. Some are required to hold the certificate of the Sanitary Institute of Great Britain or a certificate equivalent thereto, others are required to possess marine engineers' first-class certificates, whilst the superintendent ambulance inspector must possess a sanitary certificate and also the certificate of the St. John Ambulance Association. The inspectors of meat and animals are required to be butchers by trade and those of fish and fruit must be fishmongers by trade. There are many other special points in the report which want of space prevents me from enumerating.

June 11th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Aberdeen University Sports.

THE ninth amateur meeting of the Aberdeen University Athletic Association was successfully held on June 7th and 8th at the University Recreation Ground, King's College. At the conclusion of the contests the Aberdeen team for the inter-University sports was selected.

Aberdeen Volunteer Medical Staff Corps.

The annual inspection of this corps took place in the grounds of the Grammar School on June 9th. There was a capital turn-out, 128 officers and men being on parade. The inspecting officer, Colonel J. P. Rooney, R.A.M.C., principal medical officer for the Scottish district, expressed himself as being exceedingly pleased with the corps.

Bequests to Aberdeen Hospitals.

By the death of Mrs. Macdonald of Kepplestone four hospitals will benefit to the extent of £1400 in all, of which £1000 will go to the Royal Infirmary. There is also a legacy of £100 to the Aberdeen District Nursing Association. All the legacies are free of duty.

June 12th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Apothecaries' Hall of Dublin.

MUCH satisfaction was felt in Dublin at the decision of the General Medical Council with reference to the examinations of the Apothecaries' Hall as reported in the proceedings of the Council contained in THE LANCET. Reports were received from the inspector, Dr. G. A. Gibson, stating that he had inspected the last three examinations, held in October, January, and April last, and that they were satisfactory in every respect.

The Gas-supply of Dublin.

Ever since the attention of the Dublin public was drawn to the dangers attending the addition of carburetted water-gas to the ordinary illuminating gas supplied to the citizens and to the necessity of precaution with reference to the fittings in houses in order to prevent leakage of a mixture now become more poisonous than heretofore, much anxiety has shown itself. It will be remembered that the above warning was conveyed in a letter addressed by Professor Emerson Reynolds of Trinity College to the Dublin papers some months ago. At a monthly meeting of the Dublin Corporation held on June 11th the matter was under discussion and it appeared that the Alliance and Dublin Consumers Gas Company has recently laid down plant by which they would be enabled to produce 4,000,000 cubic feet of water-gas per day, thus exceeding their present supply by 1,000,000 cubic feet. A proposal made by Alderman Meade was ultimately agreed to—viz., that the question should be referred to the special Gas Committee in order that full information as to the properties of the gas and the danger to life of admixtures of it might be obtained from experts.

The Typhoid Fever Outbreak at Belfast.

The medical superintendent officer of health of Belfast reports that the death-rate for the week ended June 2nd was 19·5 per 1000 from all sources, and 2·8 from the principal zymotic diseases. In the corresponding period of 1899 the death-rate from all causes was 23·1 and from zymotic diseases 1·9 (including only two from typhoid fever). For the week ending June 2nd 57 cases of typhoid fever were notified in Belfast. He also reported that the water-supply of the city was anything but satisfactory, and he advised the boiling of all water to be used for drinking or culinary purposes.

Burning of Newry Workhouse.

Newry workhouse was burned down on the night of June 7th. The local and military fire brigades were at hand, but owing to the want of water they were quite helpless. The infirm patients were carried to the fever hospital which is close to the workhouse, and during the course of removal one of the infirm patients expired and many others were much weakened from shock. It seems that, though repeated warnings were made as to the danger in case of fire and in spite of the master's request for fire appliances the guardians have been wrangling for a year over the question of introducing a water-supply from the town. Naturally great indignation is felt at their remissness. It is said that the fire was caused by the upsetting of a lamp, no gas being in the building. Fortunately there were only 200 inmates and as the fever hospital was empty no difficulty was experienced in providing for their accommodation. It is stated that the damage done will amount to close on £5000, but the place is insured. At a meeting of the Newry guardians on June 9th a sub-committee was appointed to consult with the architect in reference to the rebuilding of the place.

The Royal University Graduates' Association.

The secretaries of this association, which was formed last year (when Mr. Balfour's scheme was under discussion) to oppose the destruction of the Royal University of Ireland and the establishment of universities under sectarian control, have issued a circular to the graduates, who number upwards of 5000, urging them to become members of Convocation, so that no graduate shall be elected a member of the Senate who was in favour of sectarian universities. In this circular a very fair and judicial expression is given of the views of the Graduates' Association on the question of university education. They hold that continuity is essential to the success of a university, and they believe that improvement in Irish university education should be looked for not through destructive legislation, but through reforms in the internal organisation of the university and its associated colleges. They think that if the Royal University was reorganised—and an example in this direction is afforded by the London University—with the view of honestly promoting university education and not sectarian interests, the problem of Irish university education would be solved.

The Belfast Asylum and the Infectious Diseases Hospital.

At the usual monthly meeting of the Belfast Asylum governors held on June 11th, the following resolution, of which notice had been given, was upon discussion passed by 6 to 4 votes:—

That his Excellency the Lord-Lieutenant of Ireland be requested to take such steps as he may consider proper to prevent the erection of an infectious diseases hospital on any portion of the lands of Purdysburn which have been acquired for lunatic asylum purposes.

A very stormy discussion took place at the committee meeting in reference to a verdict of a coroner's jury on a female patient who died in the asylum from phthisis.

June 12th

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Illegal Practice of Medicine by Masseurs and Magnetisers.

THIS question, which is a matter of the highest interest as regards the rights of the medical profession, remains in abeyance, the courts in different departments having given different judgments in absolutely similar cases. In the department of the Sarthe, for instance, illegal practice of medicine flourishes unchecked, thanks to the indulgence afforded to masseurs and magnetisers by the courts, an indulgence which is made manifest by various judgments which by the medical profession are considered to be simply scandalous. The Court of Cassation has just decided to study the question, and although it has not yet given any decision the report of the counsel to whom was entrusted the inquiry is so favourable to the magnetisers that there is great fear of the court giving a decision in accordance with this disastrous opinion. It is true that the duty of the Court of Cassation is to interpret the formal text of the law and not to reform it even when it is manifestly bad. On this view it must be remembered that the law of 1892 which defined the illegal practice of medicine did not specially mention magnetisers. The Government Commissioner who was charged with seeing the Bill through the Chamber was Dr. Brouardel, now Dean of the Faculty of Medicine. In the original draft of the Bill magnetisers were expressly mentioned. The Chamber, however, was not at all prepared to look upon the Bill with favour in view of the opinions of many country electors, among whom bone-setters and quacks of all kinds enjoy great popularity and afford valuable help to the deputies at election times. Dr. Brouardel thought for the moment that the whole Bill would be lost, so he considered it better to make some concessions and the magnetisers were struck out. If the Court of Cassation adheres to the strict letter of the law and declares that magnetisers are not illegal practitioners the door to similar illegal practice will remain open unless some special law is passed to prevent it, which is extremely unlikely. Magnetisers are getting more and more numerous and have founded a school of magnetiser-masseurs which is a regular breeding ground for quacks and which solemnly issues diplomas by the aid of which the recipients make a good thing out of public credulity. They hold regular consultations, put a stop to treatment already recommended, and, not content with using magnetic passes, prescribe magnetised water which has been magnetised by themselves. It is, at first sight, astonishing to see masseurs joining with magnetisers, for they have nothing in common with these latter except in doing illegal practice by attributing medicinal virtues to movements. But masseurs have been formally taken cognisance of by the law from the point of view of illegal practice. Often, too, they have been sentenced by the courts; for instance, only recently the Court of Versailles sentenced a masseur who had treated two fractures and a dislocation, although the prisoner had been acquitted for a like offence by the Court of Mantes, which enunciated the remarkable opinion that the practice of massage was under no restriction whatever. The Court of Versailles, however, rejected this theory, quoting the terms of the law of 1892, which defines illegal practice as the continuous treatment (*diriger d'une façon suivie le traitement*) of surgical diseases or affections by anyone who has not a diploma except in such cases as when urgency is definitely proved. The court further added that the word "treatment" means any act or advice tending to the cure or alleviation of an illness or state of illness and that it must not be arbitrarily confined to a prescription for drugs or to the performance of surgical operations properly so-called. Masseurs, then, whose status is clearly defined have an incentive to associate themselves with magnetisers whose legal status is still indefinite. On the other hand, magnetisers, who are rightly considered by a great part of the public as quacks, have every incentive to pretend that their practices are similar to massage, of which the public hear the benefits lauded by medical men themselves. Here, then, is the explanation of this unnatural combination which at first sight seems inexplicable.

The Carriage of Small-pox by Flies.

At the meeting of the Academy of Medicine held on June 5th M. Hervieux, who has made a special study of the vaccination question, read a report of some observations made by M. Laforgue at Tamorna-Djedida in the province of Constantine. During an epidemic of small-pox at that place M. Laforgue ascertained that the parents of children who were attacked by small pox all lived in the south-west of the village and that the northern part remained unaffected. He explained this fact as due to the direction of the prevailing winds which blow, especially during March and April. He also noticed that flies and gnats which become very numerous about this time are distributed with the wind. As these insects are known to play an important part in the dissemination of granular conjunctivitis M. Laforgue is of opinion that they act in the same way as regards small-pox, acting as carriers of the specific virus.

Obituary.

Dr. Cadet of Cassicourt died on June 10th at the age of 72 years. He was honorary physician to the Trousseau Hospital and a member and formerly annual secretary of the Legion of Honour. He had a great reputation for his knowledge of infantile pathology and left a large number of works upon that subject, especially the "Treatise upon the Diseases of Children." M. Masson, the well-known medical publisher, has just died. He succeeded his father, Victor Masson, as the head of the most important medical publishing house in France, and the number of medical and scientific journals published by the house amounted to 50. He was librarian of the Academy of Medicine, treasurer of the Association of French Medical Men, President of the Paris Chamber of Commerce, and Commander of the Legion of Honour. He was a man of the highest integrity and had no enemies.

June 12th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Hetol, a Remedy for Tuberculosis.

HETOL, or cinnamate of sodium, has been recommended by Professor Landerer of Stuttgart as a specific against tuberculosis and has been tried by Professor Ewald, whose results as described in a communication made to the *Berliner Klinische Wochenschrift* were less positive than those obtained by the originator of the method. The mode of administration was by injection into the median vein, the amount commencing with one milligramme and rising to 15 milligrammes. The injections were given to 25 patients, of whom one had laryngeal tuberculosis and the others had pulmonary tuberculosis, and all of them were in a stage of the disease in which successful treatment was still possible. The influence of the injections was shown by small hæmorrhages in the sputa; somewhat abundant hæmoptysis being observed only once. Another symptom was a sensation of drowsiness felt by the patients after the injections. The bacilli were not influenced by hetol nor was any effect observed on the perspiration or the temperature. With regard to the influence of the treatment on the general condition of the patients, Professor Ewald stated that in four cases complete success was obtained; in five cases there was an improvement; in six cases the progress of the disease was stopped; whilst in ten instances there was a rapid deterioration. One patient died after having been for 316 days in the hospital and after having had 70 injections. The post-mortem examination showed that the pulmonary tuberculosis had healed, but that there was a well-marked fatty degeneration of the heart which was the cause of death. In 14 cases an increase of weight was observed, but this was the rule with many patients of the poorer class who improved at once after admission to hospital on account of the food and the hygienic conditions being better than in their own homes. As to the patients in whom the disease continued its progress the report stated that seven out of 10 died. The prognosis of these cases was not very bad at the outset, as patients of this kind had not been chosen for the treatment. Professor Ewald concluded that success was obtained in only 8 per cent. of the cases. The results met with in the Augusta Hospital were therefore not in accordance with the experience of Professor Landerer. The method, being harmless, might be tried on a larger scale; but the statistics appeared to be not much better than those furnished by well-conducted sanatoria. In fact, many of the recoveries from phthisis were not due to any specific treatment but to the vital power of the organism when it was assisted by hygienic measures.

The German Ambulances with the Boers.

A second letter from Dr. Hildebrandt, one of the German medical officers to the Red Cross ambulances with the Boer army, has been published in the *Münchener Medicinische Wochenschrift*. In this communication, which was dated from Pretoria on April 7th, he referred to the occurrences after the capture of Jacobsdal by the British troops, a turn of events with which he was well satisfied, not only because the ambulance had then plenty of work, but also because the British authorities were much more agreeable to deal with than the Boers. The members of the ambulance had to pay for food and, in fact, for everything they wanted, and they were hindered in every way when they made requests for the sake of the wounded. The British authorities, on the other hand, met their wishes as much as possible. One of the surgeons and two attendants caught enteric fever. After the battles near Jacobsdal the ambulance had to provide for about 120 wounded soldiers, the majority being serious cases, but it fortunately happened that the wounds inflicted by modern rifle-bullets required operation only very seldom; wounds of the brain, however, where suppuration often ensued had to be operated on in many instances. The majority of intestinal wounds healed by conservative treatment. The ambulance received not only Boers but also British officers and men.

June 11th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Bacillus of Hospital Gangrene.

AT a recent meeting of the Vienna Society of Physicians there was an interesting discussion on the Etiology of Hospital Gangrene. It was introduced by a paper communicated by Dr. Matzenauer, an assistant in Professor Neumann's clinic for syphilis and dermatology, who stated that he had observed 22 cases of hospital gangrene situated on the penis and prepuce. On microscopical examination he found that the ulcers showed an inflammation causing early coagulation-necrosis of the tissues. In all these cases, especially at the junction of the inflamed and the necrotic tissues, there was a bacillus which could be stained by Weigert's method and seemed to be anaerobic. Cultures of the bacillus could be obtained only with difficulty and inoculation experiments did not give any result. Dr. Matzenauer pointed out that these gangrenous ulcers did not produce any enlargement of the inguinal glands. Some of the speakers were of opinion that the cases ought not to be called hospital gangrene, a disease which had hardly been seen for the last 30 years. It was, therefore, improbable that no less than 22 cases of that extinct disease should have occurred in one ward of the clinic in the course of the last three years, and the general opinion of the meeting was that the cases described by Dr. Matzenauer were merely phagedenic chancres and ulcers. On the other hand, it was admitted that the ulcers described by him showed the clinical signs attributed to hospital gangrene by various authors, and that as the bacillus discovered by him was found in all the cases it might be the cause of the disease, even though the experiments made on animals gave no result.

Peculiar Corpuscles in the Blood of Syphilitic Persons.

Dr. Lostorfer of Vienna has published a preliminary communication in which he states that some days after the appearance of a chancre, but before the coming out of the syphilitic eruption, small round corpuscles of the size of the blood-granules, having a peculiar lustre, are to be found in the blood of the patients. These corpuscles aggregate after some hours in groups of from two to 20, forming oblong bodies. After three days they begin to disappear, especially when mercurial treatment has been commenced, and after 20 or 25 inunctions they can no longer be found. Dr. Lostorfer could not find these corpuscles either in the blood of healthy persons or in that of patients suffering from other diseases than syphilis. Professor Paltauf confirmed this statement of Dr. Lostorfer; he said that these corpuscles were not stained with the ordinary staining solutions; they became more visible on the addition of acetic acid, and he believed that they were products secreted by tissues or coagula, but he could not state if they had a specific character. More than 20 years ago Dr. Lostorfer caused an animated controversy among the leading histologists by his alleged discovery of specific corpuscles in the blood of syphilitic patients, but on the present occasion he did not mention whether his recently discovered corpuscles were similar to those found before

June 11th.

Obituary.

GEORGE EDWARD WILLIAMSON, F.R.C.S. ENG.

DEATH has been very busy in the ranks of the medical profession at Newcastle-upon-Tyne during the last 12 months, seven well-known medical men having died. The latest of these is Mr. G. E. Williamson who succumbed to an acute attack of pleuro-pneumonia on Wednesday, June 6th. On the previous Thursday Mr. Williamson did his work in the Royal Infirmary, apparently in his usual health. Before leaving the institution, however, he complained to his house surgeon of not feeling well, and on arrival at his house in Eldon-square he had a rigor and retired to bed. Dr. D. Drummond saw him the same evening and found him to be suffering from an attack of pneumonia which ran a very acute course and terminated fatally on the sixth day. Throughout his illness he was most assiduously attended by his old friend Dr. Drummond and by Dr. J. D. Wardale, who for some years has acted as his assistant in the ophthalmic department of the Royal Infirmary.

Mr. Williamson was born at North Shields 48 years ago and received his medical education at the London Hospital, where he was a distinguished student and held several resident appointments. He also studied for a time in Paris. In 1874 he received the diploma of M.R.C.S. Eng. and in 1875 that of L.S.A.; in 1878 he was admitted F.R.C.S. Eng. He came to Newcastle to be house surgeon in the Royal Infirmary and was subsequently assistant to the late Mr. Heath, until in 1879 he commenced practice on his own account as an ophthalmic surgeon. He had already shown his inclination towards this branch of professional work while attending the Royal Ophthalmic Hospital, Moorfields, and he eventually made a reputation which led to his being appointed ophthalmic surgeon to the Royal Infirmary and lecturer in physiology in the University of Durham College of Medicine in Newcastle. On the death of Professor Arnison a few months ago Mr. Williamson became the colleague of Professor F. Page in the chair of surgery and was engaged up to the time of his death in conducting his operative surgery class.

He was till quite recently honorary secretary and treasurer of the North of England Branch of the British Medical Association and a representative of the branch on the General Council of the Association. At the meeting of the Association in Newcastle in 1893 he presided over the section of Ophthalmology, his address at the opening of the section being on the subjects of refraction testing and medical education in ophthalmology. Mr. Williamson was connected for 12 years as honorary surgeon with the Northern Counties Institution for the Deaf and Dumb and he took a very active interest in the Surgical Aid Society. The deceased was held in the highest esteem by his medical colleagues as well as by a wide circle of friends in the city, and much sympathy is felt for his widow and five young sons. The funeral took place on June 9th at St. Andrew's Cemetery, Moor Edge, in presence of a numerous assemblage.

THOMAS FITZ-PATRICK, M.D., M.A. DUB., M.D. CANTAB., M.R.C.P. LOND.

DR. THOMAS FITZ-PATRICK of 30, Sussex-gardens, Hyde Park, W., whose death is announced, was a distinguished graduate of Dublin University, obtaining his M.D. degree in 1862 and his M.A. in 1864. He was admitted M.D. of Cambridge in 1867 and M.R.C.P. Lond. in 1868. In 1856, the same year in which he was awarded the silver medal of the Pathological Society of Dublin for his work on "Chronic Diseases of the Liver," he indicated his future successes in his profession by passing, at a competitive examination, for the post of assistant surgeon in the service of the Honourable East India Company. His

health, however, soon broke down and after practising for some years in Ireland he settled to private practice in London. He married in 1865 Agnes Letitia, youngest daughter of the late William Robinson, LL.D., of Tottenham, Middlesex, of the Inner Temple, Barrister-at-law, J.P., and deputy-lieutenant of the county. He became a Fellow of the Royal Medical and Chirurgical Society and served as a member of its council in 1894–95; he was also a member of the Clinical Society of London. Dr. Fitz-Patrick was, however, far more than a talented physician. He was a *savant* in its highest sense and a linguist of high order, conversing in Italian, German, and French almost as fluently as in his own language, while his attainments as a classical scholar were far above the average. Moreover, he could read modern Greek with as much ease and pleasure as English. He possessed to a remarkable extent the faculty, so essential to members of the profession, of winning the confidence and attachment of his patients as well as the love and esteem of countless private friends. Unselfish almost to a fault, his thoughtfulness for everyone and his generosity and kindness to all who required help were proverbial, and it may truly be said of him that his right hand never knew what his left hand did. His two books, "An Autumn Cruise in the Ægean, or Notes of a Voyage in a Sailing Yacht," and "A Transatlantic Holiday," proved him the owner of a facile and graceful pen. He was a brilliant conversationalist and a *raconteur* with an absolutely wonderful memory for reciting either prose or poetry. In short he was a man of varied attainments, a steadfast and true friend, and a devoted husband.

JULIUS ALTHAUS, M.D. BERLIN, M.R.C.P. LOND.

THE death is announced of Dr. Julius Althaus in his sixty-eighth year. He was born at Detmold, in Germany, in 1833, where his father was a Lutheran minister. At the age of 17 years young Althaus entered the University of Bonn, intending to study classics, but before long he devoted himself to the subjects of medicine and natural philosophy. In the year 1851 he commenced to study medicine at the University of Gottingen, and thence went to Heidelberg and Berlin, at which last place he was selected by the great physiologist Müller to accompany him on a voyage of research to Sicily. Having taken the degree of M.D. at Berlin he went to Paris, Vienna, Prague, and London to perfect his studies. He finally settled in London, becoming a Member of the Royal College of Physicians in 1860. Having devoted himself mainly to the study of the nervous system and to electrical treatment, he was for some time assistant to the late Dr. R. B. Todd in King's College Hospital. In 1866 he founded the Hospital for Epilepsy and Paralysis in Regent's Park, where he acted as physician for 28 years and to which in 1894 he was unanimously elected consulting physician. He was a voluminous writer, chiefly of books upon electrical treatment and diseases of the nervous system, and his book upon "Failure of Brain Power" reached a fifth edition, the circulation being largely among laymen. Apart from purely professional knowledge he was a man of varied attainments and a good musician. He was a firm believer in the value of and necessity for a holiday, and last year while enjoying one in Switzerland met with an injury to his knee which was the beginning of his fatal illness. Gout supervened, followed by phlebitis and peritonitis, from which last complication he succumbed. His death is mourned by a large circle of patients and friends.

W. T. RADFORD, M.D. T.C.D.

ON May 19th there died at Sidmouth Dr. W. T. Radford at the patriarchal age of 89 years. He was the son of Peter Radford, a well-known physician in the West of England at the beginning of the present century. Dr. Radford was educated at Trinity College, Dublin, where he took the degree of M.D., and being blessed with private means he never practised his profession as a means of livelihood, but devoted himself to science and art. He was one of the earliest members of the Athenæum Club and travelled a great deal upon the continent, studying ecclesiastical architecture. He settled with his brother's family at Sidmount, near Sidmouth. Some 30 years ago it came to his knowledge that the poor, and especially lace-workers, were constantly imposed upon by itinerant vendors of spectacles, a fact which was often the cause of injury to their eyesight. He therefore gave out that he would supply any applicant whom he considered deserving with a pair of spectacles, and in addition he personally saw the applicants and tested their sight. He was a firm supporter of the local cottage hospital and dispensary, the former of which institutions was mainly founded by members of his family.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Heinrich Laudahn, Director of the Lindenburg Asylum, Cologne, at the age of 70 years.—Dr. Leopold Grossmann, the *doyen* of Hungarian ophthalmologists, at the age of 79 years.—Dr. Korsakoff, Professor of Mental Diseases in the University of Moscow, at the age of 48 years.—Dr. Benjamin F. Leonhard, Professor of Gynæcology and Children's Diseases in the Baltimore Medical College.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen have passed the First Professional Examination for the Diploma of Fellow:—

Joseph Ebenezer Adams, St. Thomas's Hospital; Robert Young Aitkin, M.D. Glasg., Glasgow University; Kenneth Anderson, Guy's Hospital; Charles Todd Andrew, Aberdeen University; Austin Lewis Badcock and Eric Bayley, Charing-cross Hospital; Edward Augustine Bell, King's College Hospital; Percy Stanley Blaker, M.R.C.S. Eng., L.R.C.P. Lond., Calcutta Medical College and University College, London; Harold Burrows, M.B. Lond., M.R.C.S. Eng., L.R.C.P. Lond., St. Bartholomew's Hospital; John Beuzeville Byles, M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., Westminster Hospital; John Cameron, M.R.C.S. Eng., L.R.C.P. Lond., M.B., Ch.B. Edin., Edinburgh University; James Alane Coupland, Yorkshire College, Leeds; Maurice A. M. Fitzmaurice-Kelly, St. Mary's Hospital; William Robert Gibson, M.R.C.S. Eng., L.R.C.P. Lond., and John Dawson Hartley, M.R.C.S. Eng., L.R.C.P. Lond., St. Bartholomew's and King's College Hospitals; Douglas Gray, Charing-cross Hospital; Edward Erskine Henderson, M.B., B.C. Cantab., Cambridge University, Guy's, and King's College Hospitals; Joseph Tremayne Hicks, Guy's Hospital; Somerville Hastings, Gerald Stephen Hughes, and William Warwick James, L.D.S. Eng., Middlesex Hospital; Robert Jacques, University College, Liverpool, and King's College, London; John Charles Grant Ledingham, B.Sc. Aberd., Aberdeen University; William Archibald Logan, M.B., Ch.B. New Zeal., M.R.C.S. Eng., L.R.C.P. Lond., New Zealand University, Dunedin, and King's College, London; Harold Ashton Lyth, University College, London; James McClure, M.B., C.M. Glasg., M.R.C.S. Eng., L.R.C.P. Lond., Glasgow University; Arthur Ronald McLachlan, M.R.C.S. Eng., L.R.C.P. Lond., Guy's Hospital; Thomas Holmes Middleboro', M.D. Toronto, M.R.C.S. Eng., L.R.C.P. Lond., Toronto University, Canada, and Middlesex Hospital; Harry Overy, Edinburgh and St. Andrews Universities; John George Pardoe, M.B., C.M. Aberd., M.R.C.S. Eng., L.R.C.P. Lond., Aberdeen University and King's College London; John Herbert Parsons, M.B. Lond., M.R.C.S. Eng., L.R.C.P. Lond., University College and Royal Infirmary, Bristol, and University College, London; Carrick Hey Robertson, and Robert Pugh Rowlands, M.R.C.S. Eng., L.R.C.P. Lond., Guy's Hospital; Percy Wm. George Sargent, M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., Cambridge University, and St. Thomas's Hospital; Arthur Reginald Schofield and Hugh Barnard Willoughby Smith, London Hospital; William Edward James Tuhoy, Guy's Hospital; Herbert George Tymms, M.B., B.S. Melb., M.R.C.S. Eng., L.R.C.P. Lond., Melbourne University, St. Bartholomew's Hospital, and King's College, London; Sidney James Wareham, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A. Lond., Charing-cross Hospital; Noel Everard Waterfield and Herbert Victor Wenham, St. Bartholomew's Hospital; John Harry Watson, M.R.C.S. Eng., and L.R.C.P. Lond., University College and Royal Infirmary, Liverpool, and King's College, London; Moses Thomas Williams, London Hospital; Bertram Shera Wills, M.R.C.S. Eng., L.R.C.P. Lond., St. Thomas's Hospital.

Of the 113 gentlemen who presented themselves for this examination, 44 passed and 69 were referred.

The following gentlemen having passed the necessary examinations and conformed to the by-laws and regulations, have been admitted Fellows of the College in the order of their seniority as Members:—

Thomas Richard Mulroney (Major I.M.S., Bengal), M.D. Malta, L.R.C.P. & S. Edin., Bombay and King's College, London, date of Membership, Jan. 19th, 1880; Frederic Victor Milward, M.B., B.C. Cantab., L.R.C.P. Lond., Cambridge University and St. Thomas's Hospital, Member Feb. 7th, 1895; Hugh Mallinson Rigby, M.B., B.S. Lond., L.R.C.P. Lond., London Hospital, Member Feb. 7th, 1895; John Shields Fairbairn, M.B., B.Ch. Oxon., L.R.C.P. Lond., Oxford University and St. Thomas's Hospital, Member Nov. 14th, 1895; Louis Bathe Rawling, M.B., B.C. Cantab., L.R.C.P. Lond., St. Bartholomew's Hospital, Member August 4th, 1895; Stephen Frederick Lynch, L.R.C.P. Lond., King's College Hospital, Member Feb. 11th, 1897; Malcolm Goodworth Dyson, L.R.C.P. Lond., St. Bartholomew's Hospital,

Member May 13th, 1897; Donald John Armour, M.B. Toronto, M.R.C.P. Lond., M.C.P. & S. Ont., University of Toronto, Canada, and University College, London, Member July 3th, 1897; William Douglas Harmer, M.B., B.C. Cantab., L.R.C.P. Lond., St. Bartholomew's Hospital, Member August 2nd, 1898; Walter John Henry Hislop, M.B., C.M. Edin., L.R.C.P. Lond., St. Bartholomew's Hospital, Member August 2nd, 1898; Herbert Sherwell Clogg, M.B. Lond., L.R.C.P. Lond., Charing-cross Hospital, Member Nov. 10th, 1898; Lawrie Hugh McGavin, L.R.C.P. Lond., Guy's Hospital, Member Nov. 10th, 1898; Arthur Webb Jones, L.R.C.P. Lond., St. Thomas's Hospital, Member Feb. 9th, 1899; Thomas Holmes Middlebro', M.B. Toronto, L.R.C.P. Lond., University of Toronto, Canada, and King's College, London, Member Nov. 2nd, 1899; and John Percy Lockhart Mummery, L.R.C.P. Lond., St. George's Hospital, Member Nov. 2nd, 1899.

Of the 32 gentlemen who presented themselves for this examination 15 passed and 17 were referred.

UNIVERSITY OF CAMBRIDGE.—The following degrees were conferred at the Congregation on June 7th:—

Doctor of Medicine.—L. Falkener, M.A., King's; A. H. Thompson, M.A., Trinity; W. J. Harris, M.A., Christ's.

Bachelor of Medicine.—N. J. McCaskie, B.A., and E. A. Wilson, B.A., of Caius; J. E. Linnell, B.A., of Selwyn.

Bachelor of Medicine and Bachelor of Surgery.—J. G. Taylor, B.A., King's; W. P. S. Branson, B.A., Trinity; C. E. Marriott, B.A., Clare; E. Cox, B.A., and W. M. Willoughby, B.A., Caius; H. G. Cooper, B.A., Emmanuel.

Bachelor of Surgery.—L. Falkener, M.A., King's; T. S. Taylor, B.A., King's; W. L. Ascherson, non-collegiate.

The Raymond Horton-Smith Prize for the best M.D. thesis of the year has been awarded to Mr. Alan Baldrey Green, M.A., M.B., B.C., of Downing College. His subject was "Amyloid Disease."—Dr. G. H. F. Nuttall has been appointed University Lecturer in Bacteriology and Preventive Medicine.—The election to the Knightbridge Professorship of Moral Philosophy, vacant by the resignation of Dr. Sidgwick, will be held on June 30th.—Mr. G. F. C. Searle of Peterhouse has been appointed University Lecturer in Physics.—The Right Hon. A. J. Balfour, M.P., will deliver the inaugural lecture of the University extension summer courses on August 2nd.

THE MIDDLESEX HOSPITAL.—Miss Palmer Lovell has forwarded the sum of £315 to the treasurers of this hospital to endow a bed for the remainder of her life.

PRESENTATION TO A MEDICAL MAN.—On June 3rd, in the waiting-room of the Great Western Railway-station, Frome (Somerset), the members of the railway employés' ambulance class were presented by Mrs. Chill with badges and certificates of the St. John Ambulance Association. Mr. Edwin Albert Chill, M.D., C.M. Edin., was presented with a framed photographic group of the class as a mark of appreciation of his services as honorary instructor.

VACCINATION LAW.—At the last meeting of the Lampeter (Wales) Board of Guardians it was reported that the two youngest children of a medical practitioner in Lampeter were unvaccinated, the father having given certificates under his own signature of the unfitness of his children to be vaccinated on the ground that one was suffering from "anæmia" and the other from "neurasthenia." The question arose whether certificates given by a medical man in respect of his own children would be sufficient if the certifier were summoned for non-compliance with the vaccination law and the guardians had requested the medical practitioner to allow an independent medical man to examine the children, but this had not been permitted. The guardians eventually decided to consult the Local Government Board upon the matter.

FREEMASONRY.—*The Rahere Lodge, No. 2546.*—The installation meeting of the Rahere Lodge, No. 2546, was held in the Great Hall of St. Bartholomew's Hospital on Tuesday, June 12th. Bro. J. H. Drysdale, M.D., was elected a joining member. Bro. the Rev. Sir Borradaile Savory, Bart., and Bro. Cross were re-elected members of the standing committee, and Bro. A. W. Izard was elected a member of this committee. Bro. Reece, the W.M., installed his successor, Bro. Walter Gripper, P.P.G.D. Surrey, as W.M. for the ensuing year. A past-master's jewel was awarded to Bro. Reece, and Bro. Gripper, in the name of the Lodge, presented Bro. D'Arcy Power with the jewel of a P.G.D. in recognition of his services to the Lodge in the capacity of secretary and as a token of their appreciation on his appointment to the office of a Junior Grand Deacon. The report of the Audit Committee was received and adopted. The brethren and their guests to the number of 90 afterwards dined together at the Restaurant Frascati.

NEWPORT (MON.) WATERWORKS.—The total expenditure by the Newport Corporation on the Wentwood Waterworks up to the present has been £207,808.

THE NEW INFIRMARY, WARRINGTON.—This infirmary has been formally opened by Sir J. T. Hibbert, Chairman of the Lancashire County Council. It has been erected by the Warrington Board of Guardians at an outlay of £30,000 and will provide 184 beds.

THE BECKENHAM AND PENGE MEDICAL SOCIETY.—The fifth annual dinner of the Beckenham and Penge Medical Society took place on Thursday evening, May 31st, at Beckenham and was well attended by members and guests. Among the latter were Dr. J. G. Glover (Direct Representative on the General Medical Council), Dr. Handfield-Jones, and Mr. Arbuthnot Lane. Mr. Victor Horsley sent a message regretting his inability to be present. Dr. R. M. H. Randell, Vice-President of the Society, occupied the chair. Mr. Frank Sturges, in proposing the toast of "The General Medical Council," spoke of the work of the Council generally in terms of praise, and claimed for his society and for kindred associations the credit of having by their work impressed upon the Council a clearer idea of what was expected from them as the governing body and the mouthpiece of the profession. That the Council were now alive to their responsibility was shown by their energy and public spirit which in the last few years had become so increasingly apparent. Alluding to the Midwives Bill Mr. Sturges said that the Beckenham and Penge Medical Society were now of opinion that some legislation was necessary and even desirable, but they trusted to the Council to continue to use all their influence against any Bill which went further than simply to replace the present midwife, a danger to life and society, by a class of well-trained women of good character properly instructed as to where their duties began and ended. Referring to the proposed conciliation board Mr. Sturges expressed the opinion that in such a way the club difficulty could be overcome. He was proud of the action of his society on this question. Charity had nothing to do with it. The more important friendly societies were wealthy and powerful organisations, and that they should pay properly for medical attendance under proper regulations was simply a matter of business into which sentiment had no right to enter. In coupling the toast with the name of Dr. Glover Mr. Sturges said how completely they disapproved of the way in which the remnant of the Cannon-street meeting had treated their Direct Representative. They (the Beckenham and Penge Medical Society) had actively assisted in the promotion of that meeting because they disliked much in the present Midwives Bill and believed that the profession should speak out, but the methods of the promoters were distasteful to them and in future they should act by themselves. He trusted that the vote of sympathy and confidence unanimously carried at a large meeting of the society was some slight consolation to Dr. Glover. In his reply Dr. Glover thanked the society on behalf of the Council. He quite agreed as to the necessity for the restriction of the functions of the midwife as distinguished from the medical practitioner. He especially insisted that any legislation of the sort must, in the interest of the poor lying-in woman, stop the practice of unlicensed midwives, otherwise it would be quite valueless and should be resisted. He was glad to know that the proposal of a conciliation board had the approval of the society. The success or failure of the scheme rested very much with the British Medical Association. In conclusion, Dr. Glover thanked the society for their words of personal kindness and support. The Rev. Henry Arnott, F.R.C.S., rector of Beckenham, in proposing the toast of "The Beckenham and Penge Medical Society" spoke of the value of such societies in increasing professional knowledge and promoting fellow-feeling and a kindly spirit one to another, but he urged the society to follow the lines of the Royal Medical and Chirurgical Society and the Pathological Society of London, and to leave medico-political questions to be dealt with by the General Medical Council and the British Medical Association. Dr. Randell, in his reply for the society, maintained that it was part of their duty to take an active interest in all public questions vital to the profession, that knowledge was gained and opinion formed by debate, and that those in authority could act with far greater force if they knew that the voice of the profession was with them.

THE NEW WORKHOUSES AT LADYWELL, LEWISHAM.—These new buildings, erected by the St. Olave's Board of Guardians to provide accommodation for the aged and infirm poor of Lewisham, will be opened by the Prince and Princess of Wales on July 12th.

A GIFT TO BOURNEMOUTH.—Mr. Robert B. Scarlett, proprietor of the Shelley estates, on June 5th presented to the Mayor, in the presence of a large assembly of the inhabitants, as a gift to the borough in perpetuity, the new pleasure grounds on the cliff front.

COST OF VACCINATION.—At the last meeting of the Barnstaple (Devon) Board of Guardians it was reported that there had been 769 cases of successful vaccination during 1899, against 559 in 1898, the cost for 1899 being £434, and that for the previous year amounting to £122.—At the last meeting of the Merthyr Tydvil Board of Guardians one of the members said that comparing the year 1898 with 1899 the fees of the public vaccinators in the union had advanced from £285 to £905, and the fees of the vaccination officers from £101 to £180. It was decided to petition the Local Government Board to amend the Vaccination Order with a view to the reduction of the fees.—At the last meeting of the Neath (South Wales) Board of Guardians a letter was read from the Local Government Board in reference to the suggestion of the guardians for a reduction of the fees of the public vaccinators. The Local Government Board stated that it was intended at present not to reduce these fees, as under the new system the duties of public vaccinators had become so arduous.

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY, LIMITED.—The monthly meeting of this society was held on May 29th, at 12, New-court, Lincoln's Inn. The report of the Charity Commissioners in reference to the Leek Cottage Memorial Hospital, concerning which complaint had been made by the society on behalf of one of its members, was laid before the council, several alleged irregularities being dealt with therein. The council authorised the formation of a new division of the society for the province of Ulster, and approved the list of officials, Dr. Alexander Dempsey of Belfast being the first president and Dr. S. W. Allworthy the secretary. Steps were reported to have been taken for the formation of a Yorkshire division. The secretary reported that the General Medical Council had decided to erase from the Dental Register the name of a dentist who had been charged by the society with advertising, this being the first instance in which the General Medical Council had so exercised its powers. 166 new members had joined the society since the annual general meeting in April. A satisfactory financial report was submitted.

ANNUAL MEETING OF THE BRITISH MEDICAL TEMPERANCE ASSOCIATION.—The annual meeting of this association was held on June 12th at the Examination Hall, Victoria Embankment, London, after a reception by the President (Professor Sims Woodhead) and council of medical and scientific delegates to the World's Temperance Congress which was being held in the same building. The annual report was read by the honorary secretary, Dr. J. J. Ridge, and showed an increase both of members and student associates to 487 and 515 respectively. The report expressed the hope that as it had been conclusively demonstrated that men could do harder and more continuous work without than with alcohol, the rum ration should be abolished and the canteen purged from intoxicating drinks. It was announced that a Manchester branch had been formed of which Dr. A. T. Wilkinson had been elected president and Dr. Gray Clegg honorary secretary. Dr. Legrain and Dr. Boisser of Paris were elected honorary members of the association. Votes of thanks were accorded to the President and officers. Previously to the meeting a demonstration, with the aid of the electric lantern, had been given by Dr. Ridge in the lecture theatre of Scientific Reasons for Total Abstinence. He showed that healthy cell-life, both vegetable and animal, was impossible in the presence of minute quantities of alcohol, while by its interference with oxidation and the removal of waste products it injured the proper performance of every function. A novel experiment shown was the influence of even 1 per cent. of alcohol on the oxygen-producing function of the chlorophyll of water-plants, which it greatly diminished. The presence of alcohol, while it lowered vital function, even of the yeast which produced it, favoured and accelerated decomposition. The cumulative effect of small "moderate" doses was proved by the experience of life assurance offices and friendly societies, the difference in favour of the abstainers being much more marked after the age of 60 years, when the degenerations caused by alcohol had had time to take place. Diagrams prepared by Dr. Legrain were shown indicating how the increasing consumption of alcohol in France and Belgium was accompanied by the increase of crime, &c., and the proportion of conscripts rejected, these diminishing in Sweden and Norway, where the amount of alcohol consumed was lessening. There was a large attendance at this demonstration.

NATIONAL SANATORIUM FOR CONSUMPTION, BOURNEMOUTH.—The annual general meeting of governors of this institution was held at the Westminster Palace Hotel on June 13th. In the unavoidable absence of the Earl of Eldon (the President), Mr. Arthur F. Jeffreys, M.P., occupied the chair. It was resolved that the report and statement of accounts for the year 1899, as submitted, should be adopted and printed. Sir Edward H. Hulse, Bart., the Hon. T. A. Brassey, and Mr. D. H. W. Robson-Burrows were appointed trustees. The report showed that there was a debt of £655 for the building of a new sanitary wing at a cost of £1000, and that the ordinary annual expenses had been increased to the extent of about £200, due mainly to the expenditure requisite for efficiently carrying out the open-air treatment, and that this further sum would be required to meet the expenses of the present year. With the concurrence of the President, and of the Earl of Mount Edgcombe and Lord Wimborne, the vice-patrons, it was resolved that a special appeal should be issued to the general public for donations and subscriptions.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

ALLEN, V. F., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Pentney Sanitary District of the Freebridge Lynn Union.

ANDERSON, W., M.B., C.M. Edin., has been appointed a Public Vaccinator for the District of Waikau, New Zealand.

BELL, H. T. S., F.R.C.S. Eng., has been appointed Health Officer at Wallungarra, Queensland.

BINNEY, E. H., M.B., Ch.M. Syd., has been appointed Honorary Surgeon to the Children's Hospital, Sydney, New South Wales, vice W. Chisholm, resigned.

BOWKER, C. S., L.R.C.P. Lond., M.R.C.S., has been appointed Government Medical Officer and Vaccinator at Dungog, New South Wales.

BUCHANAN, P., M.B., C.M. Glasg., has been re-appointed Medical Officer by the West Dean Rural District Council.

CARR, MICHAEL, L.K.Q.C.P., L.R.C.S. Irel., has been appointed Officer of Health for the Shire of Woorayl, Victoria, Australia.

CODD, A. F. G., M.B. Durh., F.R.C.S. Eng., has been appointed Certifying Surgeon under the Factory Acts for the Bromley District, comprising Bromley Urban District and the Civil Parishes of Keston, Cudham, Downe, Farnborough, Chelsfield, Knockholt, Hayes, and West Wickham in Bromley Rural District.

COURTENAY, K. J., L.R.C.P., L.R.C.S., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Wareham and Purbeck Rural District, vice D. Lys, resigned.

CROSSFIELD, ARTHUR KYFFIN, L.R.C.P., L.R.C.S. Edin., has been appointed Public Vaccinator for Dartmouth, Devon.

EADON, S. B., M.D., Ch.M. Aberd., has been appointed Officer of Health for the Shire of Karkarooc, Victoria, Australia.

ELLIOT, F. J., M.R.C.S., has been appointed Officer of Health to the Donnybrook Local Board of Health, West Australia.

FLINT, J. B., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory Acts for the Buxton District, which comprises the Urban Districts of Buxton and Fairfield, and the Townships of Hartington Upper Quarter, Wormhill, Kingsterndale, and Peak Forest in Chapel-en-le-Frith Rural District.

FREEMAN, JOHN, L.R.C.P. Lond., M.R.C.S., Civil Surgeon, has been appointed Officer in Medical Charge of Troops at Plymouth, vice R. Turner, Lieut.-Colonel, placed on the sick list.

HAYWARD, W. T., L.K.Q.C.P. Irel., M.R.C.S., has been appointed a Member of the Board of Management of the Adelaide Hospital, South Australia.

HEPWORTH, A. F., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Officer of Health for the Shire of Tungamah, Victoria, Australia.

HIGGINSON, C. G., L.R.C.P. Lond., M.R.C.S., has been appointed Assistant Medical Officer of the Infirmary for the Parish of Birmingham, vice J. O. Dowd, resigned.

KELLY, C., M.D. Lond., F.R.C.P., has been re-appointed Medical Officer of Health, West Sussex Combined Sanitary District.

KENDALL, WALTER BENGER, M.R.C.S., L.R.C.P. Edin., has been appointed Public Vaccinator for Kingsweor, Devon.

LIDDER, P. H., M.B., Ch.B. Melb., M.R.C.S., has been appointed Officer of Health for the Western Riding of Warranga, Victoria, Australia.

MARKS, E. G. K., M.D., Ch.M. Irel., has been appointed Visiting Surgeon to the Police Gaol at Herberton, Queensland.

MORTON, G., M.B. Syd., has been appointed Senior Medical Officer to the Hospital for the Insane, Gladesville, New South Wales.

MUIR, J. S., M.B., C.M. Edin., L.R.C.P. Edin., has been appointed Certifying Surgeon under the Factory Acts for the Selkirk District.

PAGET, OWEN, F., M.B., B.S. Cantab., has been appointed Health Officer to the North Fremantle Local Board of Health, West Australia.

PEIPERS, F., M.D. Berl., has been appointed a Public Vaccinator at Mitcham, Victoria, Australia.

PONDER, C. P., M.B., Ch.M. Edin., has been appointed Government Medical Officer and Vaccinator at Hillston, New South Wales.

PRICK, S. E., L.S.A., has been appointed Medical Officer for the Ninth Sanitary District of the Bromley Union, vice C. N. Hamper, resigned.

RAMSAY, J. E., M.B. Lond., has been appointed Officer of Health to the Lennonville and Mount Magnet Local Boards of Health, West Australia.

RENDLE, R., F.R.C.S. Eng., has been appointed Medical Officer and Visiting Surgeon to the Gaol at Normanton, Queensland.

ROBINSON, T. H., M.D. Edin., Ch.M., has been appointed to act as District Medical Officer at Albany, West Australia, and Public Vaccinator for the Urban and Suburban Districts of Albany and Rural District of Plantagenet, also to be Quarantine Officer, *pro tem.*, at the Port of Albany.

ROOKE, C., M.R.C.S., has been appointed Health Officer and Medical Officer to the Police, Gaols, and Paupers for the Municipal District of Emu Bay, and also Public Vaccinator for Emu Bay, Tasmania.

ROPER, HENRY, B.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., has been appointed Deputy Medical Officer for Lynton, Devon.

SANGSTER, J. I., L.R.C.P. Edin., M.R.C.S., has been appointed Medical Officer at Koorings, South Australia.

SCHLINK, R. H., M.D. Berl., has been appointed a Public Vaccinator at Wodonga, Victoria, Australia.

SMITH, W. R., M.B., M.Ch. Edin., has been appointed Honorary Physician to the Adelaide Hospital, South Australia.

STEWART, J. E. F., M.B., Ch.M. Glasg., has been appointed to act, *pro tem.*, as District Medical Officer at Guildford, West Australia, and Public Vaccinator for the Urban and Suburban Districts of Guildford, and also the Rural District of Swan.

THANE, E. H., M.D. Lond., L.R.C.P., M.R.C.S., has been appointed Government Medical Officer and Public Vaccinator at Wagga Wagga, New South Wales.

THWAITES, J. S., M.B. Melb., has been appointed a Public Vaccinator at Woodend, Victoria, Australia.

TREVOR-ROPER, G. D., L.R.C.P. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Massingham Sanitary District of the Freebridge Lynn Union.

WALES, T. G., M.R.C.S., has been re-appointed Medical Officer of Health by the Downham Market Urban District Council.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM CITY ASYLUM, Rubery-hill, Barnt-green, S.O., Worcestershire.—Senior Assistant Medical Officer.

BOROUGH OF BOOTLE, HOSPITAL FOR INFECTIOUS DISEASES.—Resident Medical Superintendent, unmarried. Salary £120 per annum, with board, washing, and apartments in the hospital. Applications to be addressed to the Chairman of the Hospital Sub-committee, Townhall, Bootle.

BOROUGH HOSPITAL, Birkenhead.—Resident Junior House Surgeon. Salary £75 a year, with certain fees usually obtained.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—House Surgeon. Salary £120 per annum, with rooms and attendance (not board).

CARDIFF INFIRMARY.—Assistant House Physician for six months. Salary at the rate of £50 per annum, with board, washing, and apartments.

CARLISLE DISPENSARY.—House Surgeon. Salary £150 per annum, with apartments (not board).

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Resident Medical Officer for twelve months. Salary £60 per annum.

CITY OF LONDON ASYLUM, near Dartford, Kent.—Assistant Medical Officer (Locum Tenens) for seven weeks. Terms 3 guineas a week.

CORPORATION OF BIRMINGHAM—CITY HOSPITAL, Lodge road.—Assistant Medical Officer. Salary £120 per annum, with board, residence, &c.

CORPORATION OF MANCHESTER.—MONSALL FEVER HOSPITAL.—Third Medical Assistant for one year. Salary £100 per annum, with board and lodgings. Applications to the Sanitary Committee, Public Health Office, Town Hall, Manchester.

COUNTY ASYLUM, Rainhill, near Liverpool.—Assistant Medical Officer, unmarried. Salary commences at £125 per annum, with prospect of increase to £250, with furnished apartments, board, attendance, and washing.

COUNTY ASYLUM, Whittingham, Lancashire.—Junior Assistant Medical Officer, unmarried. Salary commencing at £125 per annum, increasing conditionally to £250, with furnished apartments, board, attendance, and washing.

CUMBERLAND AND WESTMORLAND ASYLUM, Garlands, Carlisle.—Locum Tenens. Terms 3 guineas per week, with board and residence.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon for 12 months. Salary £80, with board, residence, and washing.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—House Surgeon and Assistant House Surgeon for twelve months. Salary of House Surgeon £100 per annum. Assistant House Surgeon £50, with furnished apartments, board, and washing in both cases.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY, Dumfries.—House Surgeon. Salary £50 per annum, with board and washing.

EAST SUFFOLK AND IPSWICH HOSPITAL, Thorofare, Ipswich.—Second House Surgeon for one year, unmarried. Salary £60, with board, lodging, and washing.

ESSEX AND COLCHESTER HOSPITAL, Colchester.—Resident House Surgeon. Salary £100 per annum, with board and washing.

HEIGHAM HALL ASYLUM, Norwich.—Assistant Medical Officer.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months, with an honorarium of £25. Also Surgeon.

INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY, South Shields.—Junior House Surgeon. Salary £75 per annum, with residence, board, and washing.

ITALIAN HOSPITAL, Queen-square, London, W.C.—Honorary Ophthalmic Surgeon to Out-patients.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, Brunswick square.—Second Demonstrator of Physiology.

MERTHYR TYDFIL URBAN DISTRICT COUNCIL.—Medical Officer of Health for five years. Salary £400 per annum, rising £25 annually to a maximum of £500 per annum, exclusive of out-of-pocket expenses.—Applications to the Clerk, Town Hall, Merthyr Tydfil.

MIDDLESEX HOSPITAL, W.—Assistant Dental Surgeon.

MILLER HOSPITAL AND ROYAL KENT DISPENSARY, Greenwich-road, S.E.—Junior Medical Officer for six months. Salary £60 per annum, with board, attendance, and washing.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany Memorial), Queen-square, Bloomsbury, London.—Registrar. Annual honorarium 50 guineas.

NORTH RIDING ASYLUM, Clifton, York.—Junior Assistant Medical Officer, unmarried. Salary £125, rising £10 annually to £175, with board, furnished apartments, washing, and attendance.

NORTHUMBERLAND, DURHAM, AND NEWCASTLE INFIRMARY FOR DISEASES OF THE EYE, St. Mary's-place, Newcastle-on-Tyne.—Honorary Surgeon.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £140 per annum, all found except board.

OLDHAM INFIRMARY.—A Senior and a Junior House Surgeon for one year. Salary £85 and £70 per annum respectively, with board, residence, and washing. Also Locum Tenens, for at least one month. Terms 4 guineas per week, with board and residence.

PARISH OF ST. LEONARD, Shoreditch, London.—Second Assistant Medical Officer for the Infirmary, Hoxton-street, N., for six months. Salary £80 per annum, with rations, washing, and furnished apartments in the Infirmary. Applications to the Clerk to the Guardians, Clerk's Offices, 213, Kingsland-road, N.E.

PLYMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £125 per annum, rising by five equal annual additions to £150 per annum, with furnished apartments in the Asylum, with board and washing.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 a year, with board, lodging, and washing.

ROYAL BERKSHIRE HOSPITAL, Reading.—Assistant House Surgeon for six months. Salary at the rate of £50 per annum, with board, lodging, and washing.

ROYAL HALIFAX INFIRMARY.—Third House Surgeon, unmarried. Salary £50 per annum, with residence, board, and washing.

ROYAL DEVON AND EXETER HOSPITAL, Exeter.—Junior Assistant House Surgeon for six months. Salary at the rate of £80 per annum, with board, lodging, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL (MOORFIELDS EYE HOSPITAL), City-road.—Assistant Surgeon.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION, Ventnor, Isle of Wight.—Clinical Assistant. Board, residence, and laundry provided.—Apply to the Secretary, London Office, 34, Craven-street, Strand, W.C.

ROYAL ORTHOPÆDIC HOSPITAL, 297, Oxford-street, London.—House Surgeon and Registrar for six months. Salary at the rate of £100 per annum, with residence and partial board.

ST. GEORGE'S HOSPITAL, London, S.W.—Surgeon. Also Assistant Surgeon.

ST. PANCRAS, London.—Junior Assistant Medical Officer (male or female), for one year, for the St. Pancras Workhouse. Honorarium £60, and residential allowances.

SALISBURY GENERAL INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and washing.

SALOP INFIRMARY, Shrewsbury.—Assistant House Surgeon for six months. Salary at the rate of £60 per annum, with board and washing.

SOMERSET HOSPITAL, CAPE TOWN.—Assistant Resident Surgeon. Apply to the Medical Officer at the Agency, 112, Victoria-street, S.W.

STAMFORD-HILL AND STOKE NEWINGTON DISPENSARY, 189, High-street, Stoke Newington.—Assistant Resident Medical Officer. Salary £100 per annum, with board.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY, Stamford.—House Surgeon for two years, unmarried. Salary £100 per annum, with board, lodging, and washing.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician for twelve months. Salary £50 per annum, with board, apartments, washing, and attendance.

THE CHIEF INSPECTOR OF FACTORIES gives notice of the following vacancies for Certifying Surgeons under the Factory Acts: At Wolverton, in the county of Buckingham; at Ringwood, in the county of Southampton; at Gillingham, in the county of Dorset; and at Southport, in the county of Lancaster.

THE SECRETARY OF STATE FOR THE HOME DEPARTMENT gives notice of the following vacancy:—Medical Referee under the Workmen's Compensation Act, 1897, for Haverfordwest, Narberth, and Pembroke Dock in County Court District No. 31.

TIVERTON INFIRMARY AND DISPENSARY.—House Surgeon, unmarried. Salary £80, with board, lodging, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Queen's-road, Chelsea, S.W.—Resident Medical Officer for six months. Honorarium £25, with board and lodging in the Hospital.

WANDSWORTH AND CLAPHAM UNION INFIRMARY, St. John's-hill, near Clapham Junction, S.W.—Junior Assistant Medical Officer for twelve months. Board, lodging, and washing provided, and £35 at the end of each six months.

WEST DERBY UNION.—Resident Assistant Medical Officer (unmarried) at the Mill-road Infirmary, Everton, Liverpool, for one year. Salary £100 per annum, with rations. Subject to statutory deduction. Applications to the Clerk to the Guardians, Brougham terrace, Liverpool.

WESTERN GENERAL DISPENSARY, Marylebone-road, London.—Honorary Physician. Also House Surgeon, unmarried. Salary £75 per annum, with board and residence and 10s. a month for washing.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon for one year. Salary £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician and House Surgeon for six months.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £100 a year, with board, lodging, and washing.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £110 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

BATTERHAM.—On June 8th, at Grand-parade, St. Leonards-on-Sea, the wife of J. W. Batterham, M.B., F.R.C.S., of a son.

EARDLEY.—On June 9th, at Cantley Lodge, Goole, the wife of William Eardley, M.A., M.B., B.C. Cantab., of a daughter.

EVANSON-JONES.—On June 6th, at Ashton Old-road, Openshaw, the wife of E. Evanson-Jones, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., of a daughter.

LEWIS.—On June 8th, at Willingham, Cambs, the wife of Robert Travers Lewis, M.B. Dub., of a daughter.

PAGET.—On June 5th, at Westbourne, Tenterden, Kent, the wife of Peter Paget, M.R.C.S., L.R.C.P. Lond., of a daughter.

PHILLIPS.—On June 7th, at Long-street, Devizes, the wife of George C. Phillips, M.A., M.D. Cantab., of a son.

SMYTH.—On June 10th, at Bournemouth, the wife of W. Johnson Smyth, M.D., C.M., of a son.

WALKER.—On June 9th, at Dawson-place, W., the wife of Basil Woodd Walker, M.D., of a son.

WHISTLER.—On May 26th, at Stockland Vicarage, Bridgwater, the wife of the Rev. Charles Watts Whistler, M.R.C.S., of a daughter.

YOUNG.—On June 7th, at 45, Stamford-hill, N., the wife of John Young, M.D., B.S., of a son.

MARRIAGES.

BALLARD-COMBE.—On June 12th, at St. Mary's, Chester, by the Rev. W. N. Mayne, assisted by the Revs. H. Grantham (Rector), H. H. Wright, and T. P. Dimond Hogg, Robert Ballard, M.R.C.S., L.R.C.P., youngest son of the late Edward Ballard, M.D., F.R.C.P., F.R.S., to Beatrice, youngest daughter of the late James Combe, of Ormiston, co. Down, J.P., and Mrs. Combe, of Glan Aber, Chester.

EASTON—HOWLAND.—On June 6th, at Interlaken, Switzerland, Frank Edward Easton, M.R.C.S., L.R.C.P., of Devonport-street, Hyde-park, to Alice Muriel, eldest daughter of the late William Holmes Howland, of Toronto, Canada.

GAUSSEN—KENNEDY.—On June 6th, at Donaghendry Church, Stewartstown, David P. Gaussen, M.D., of Dunmurry, co. Antrim, to Ethelind, only daughter of C. G. B. Kennedy, J.P., Mullantean, Stewartstown, co. Tyrone.

GILPIN—BOTT.—On June 6th, at the Parish Church of St. Pancras, by the Rev. C. C. Brookes, William John Gilpin, M.R.C.S., L.R.C.P., of Brook Lodge, Bourne, to Ada, widow of the late Arthur Bott, of Bourne, Lincolnshire.

ISAAC—THOMAS.—On June 5th, at Tabernacle Chapel, Morriston, Richard James Isaac, L.R.C.P. & S. E., elder son of the late Evan Isaac, Esq., Craigafon, Pontardulais, to Blodwen Mary, eldest daughter of the late Henry Thomas, Esq., Aberdare House, Pontardulais.

LONG—BEADLES.—On June 12th, at Christ Church, Forest-hill, by the Rev. William Longe (uncle of the bridegroom), assisted by the Rev. Gustavus Jones (Vicar) and the Rev. M. Persse Maturin, John Reginald Long, M.R.C.S., L.R.C.P., son of Arthur Long, M.R.C.S., of Dover, to Henrietta Annie, eldest daughter of Arthur Beadles, M.R.C.S., of Forest-hill.

ROGERS—PARKER.—On June 7th, at the Church of the Annunciation, Chislehurst, Kenneth Rogers, M.D. Lond., M.R.C.S., L.R.C.P., of Alford, Bromley, Kent, to Elizabeth Hope, third daughter of Archibald Parker, of Camden Wood, Chislehurst.

SMALLWOOD—COCK.—On June 7th, at S. Stephen's Westbourne-park, Robert Percy Smallwood, M.D., son of the late Robert Smallwood, of Rigby Hall, Bromsgrove, to Annie Elizabeth, younger daughter of the late Frederick Cock, M.D., of Porchester-houses, W.

SNELL—REID.—On June 14th, at the Roxburghe Hotel, Edinburgh, by the Rev. Alexander Badenoch, M.A., assisted by the Rev. Bernard J. Snell, M.A., B.Sc., Ernest Hugh Snell, M.D., B.Sc., of Coventry, to Mary Katharine, second daughter of the late William Reid of Dunfermline, N.B.

DEATHS.

ALTHAUS.—On June 11th, at Queen Anne-street, Cavendish-square, W., Julius Althaus, M.D., M.R.C.P. Lond., aged 67 years.

EDWARDS.—On June 6th, at Felixstowe, George Cordy Edwards, M.R.C.S., late of Ipswich, in his 81st year.

LIGHTFOOT.—On June 5th, at Saville-place, Newcastle-on-Tyne, suddenly, Charles L. Lightfoot, M.D., M.R.C.S., aged 38 years.

MERRYWEATHER.—On June 11th, at Guisborough, Yorkshire, James Merryweather, M.R.C.S., aged 68 years.

WILLIAMSON.—On June 6th, at Eldon-square, Newcastle-on-Tyne, George Edward Williamson, F.R.C.S. Eng., aged 43 years.

N.B.*—*A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE SEXUAL QUACK.

WE have from time to time in these columns animadverted upon the circulars of "Dr." Bell, of the degraded blackguard who styles himself the "Reverend" David Jones (THE LANCET, Dec. 19th, 1896, p. 1774), of Madame Frain, and others, but for barefaced filth we have rarely seen anything to come up to a circular issued by an Oriental named Kabiraj Jasoda Handan Sircar whose wares are sold in Calcutta. According to the circular this person banks with Messrs. Thacker, Spink, and Co., an announcement which may or may not be true. Abominable as the circular is it has one good point—namely, it is quite free from the disgusting cant and appeals to the Almighty which disfigure the effusions of David Jones. Kabiraj Sircar is an accommodating person. Does anyone wish for a large family he can obtain the desired result by taking or giving to his wife the Great Rasanayam at four rupees per ounce. Half an ounce is to be taken daily for apparently 41 days. Should he not wish for children, "use our linen which we will tell you how to use in order to be sterile." *The panacea*, however, seems to be a drug called G. Palashiam, which is nominally for ovarian tumour, but "if you do not know the name of your disease please state the nature of the pain you feel and the colour of the discharge." Oriental sexual imaginings are far more vivid than among the natives of the colder north and we make no doubt that Sircar drives a very good trade, neither, so far as we know, is there any way to stop him.

"DEATHS UNDER CHLOROFORM."

To the Editors of THE LANCET.

SIRS,—The following extracts throw an interesting sidelight upon the matter which has been debated in your columns under the above heading. They are somewhat bewildering to a student of anæsthesia. The first three are taken from an article on chloroform by Professor Ogston in the "Encyclopædia Medica" (vol. i., 1899). The second three are taken from an article on anæsthesia, by Dr. Silk in Cheyne and Burghard's "Manual of Surgical Treatment" (part i., 1899). 1. "There is no advantage in using 'pure chloroform,' that is, chloroform prepared from pure alcohol. 'Methylated chloroform,' manufactured from methylated spirit, is as good, as pure, and as safe and costs considerably less." 2. "The position of the patient should, if possible, be recumbent—on the back with a low pillow under the head; but this may be departed from if there be any sufficient reason, as in minor operations on the throat where roof light is not obtainable." 3. "No inhaler is so good as a clean towel. ..... The writer thinks it best to cover the entire face with the towel. ..... By thus covering the face a view of the expression and changes of colour, which may be helpful to a timid and experienced chloroformist, are excluded, but to the skilled administrator these are not things of much importance. 4. "Chloroform has a chemical formula of $CHCl_3$. Its spec. grav. should be 1·497, and only that made from pure alcohol should be employed; the so-called methylated chloroform is inadmissable for anæsthetic purposes.' 5. (*a*) "With regard to position an emphatic protest must be entered against any attempt being made to administer chloroform to a patient sitting in a chair. This protest is necessary, because it is still occasionally used for tooth extraction with the patient in the ordinary dental position; when chloroform is inhaled the patient should always be recumbent." (*β*) "Neither chloroform nor any mixture containing that drug should be used with the patient sittting up in a chair; such a proceeding is absolutely unjustifiable." 6. "The ideal condition of a patient under chloroform should be somewhat as follows—viz., colour good or slightly pallid, respirations regular, fairly deep, slightly accelerated, quiet, or with a slight soft snore; eyeballs fixed or rotating very slowly from side to side, pupils moderately contracted and sluggishly sensitive, corneal conjunctivæ insensitive. ..... Blueness of the lips, cheeks, ears, &c., is quite unwarranted, as it indicates that the vapour is being given in far too great a strength, and air must at once be supplied. Some patients become very pale under any anæsthetic which contains chloroform, and if this pallor is gradually displaced by an ashen-grey hue it is an indication that the circulation is failing and the anæsthetic must be at once withdrawn, and, if need be, more energetic measures taken."

I am, Sirs, yours, faithfully,

West Ham Hospital, E., June 11th, 1900. SIDNEY VINES.

WORD-BLINDNESS—APHASIC PARALYSIS.

To the Editors of THE LANCET.

SIRS,—At page 1699 of THE LANCET of June 9th, there is an interesting query as to the possible use by aphasics of raised type, as used by the blind, and by which the blind read by touch instead of by sight.

If Mr. Menteath will refer to a paper by me on "Will-making in Aphasic Paralysis" in the *British Medical Journal* of March 31st, 1900, he will find that the use of raised letters by aphasics, both for enabling acute aphasics to make their wills and to enable

chronic aphasics to re-develop the faculty of language in the right hemisphere, has been dealt with. The method there described for the use of printed cards—as applying to aphasics in whom there is receptivity for ingoing ideas but inability to make the mind known to outsiders—was a notable success in my case. The use of raised letters for blind aphasics is also suggested and considered by me, and I have no doubt that there are some such cases in which the typewriter—made with raised key-letters for blind aphasics—may further serve such patients as mine was. But when we come to aphasics in whom receptivity for ingoing ideas also is impaired, if only to the extent of "word-blindness," used in its mental sense and not in the sense of blind aphasics, as I used it, the cases are less promising. Here the mind is profoundly affected, to a greater or less extent, over the various channels of receptivity. But the trial of raised-letter print, or of a special typewriter made with bold raised key-letters would be an interesting experiment, and I have intended to try the experiment in the next suitable case of aphasic paralysis which may fall under my care. Block letters—such as are cemented on to plate-glass shop windows or—such as are used to teach young children to spell—may enable certain aphasics to spell out or indicate the names of things, places, or persons of which they have a clear conception but cannot give utterance to, neither by speech nor writing. Gesture is unavailable for concrete substantives. For such substantives the mind thinks in images and names are lost early.

In the case described in my paper, considerable property, real and personal, was devised by a will made at my suggestion and design by means of printed cards. These cards were of three categories. 1. A list of the properties to be disposed of. 2. A list of offices to be assigned—trustees, executors, guardians, &c. 3. A list of all the testator's relatives, friends, and objects in which the testator was likely to be personally interested or which might have a claim for bequests. The cards each contained one item—property, office, or person. By a method of sorting out and combining these cards an aphasic lady was enabled to make her will perfectly and to dispose of all her property. Full details of the procedure will be found in my paper but it is too long to abstract here. I may add that in this case counsel advised the executor that the will, being without precedent and passing real property, should be proved in solemn form before the Court of Probate with notice to all such persons as might have profited by the rejection of the will. The result was a sort of action-at-law in open court before the learned President of the Probate Court, Sir Francis Jeune. The President formally approved of all that had been done and admitted the will to probate. This, therefore, becomes a leading case in will-making. In future there will be no reason why aphasics of the same type as my patient should not always have the opportunity for making their wills.

There is a very valuable and interesting chapter upon the jurisprudence of aphasia, will-making, and other topics in Sir Frederick Bateman's scholarly and researchful work on "Aphasia." I should be glad to place any brotherly help I could give at the disposal of any other practitioner who may happen to have in his charge one of these somewhat rare cases of aphasia. I should also be much obliged for an opportunity to see any such case.

I am, Sirs, yours faithfully,

Manchester-square, W., June 10th, 1900. JAMES EDMUNDS.

THE LOCAL GOVERNMENT BOARD AND VACCINATION.

To the Editors of THE LANCET.

SIRS,—In vaccinating will the following steps satisfy the requirements of the Local Government Board regulations? 1. Wash the arm with carbolised lint, using hot water and carbolic soap. 2. Thoroughly heat the lancet in a spirit flame. 3. Expel the lymph with an artificial blower. 4. Protect the surface with an antiseptic pad until the scabs fall off.

I am, Sirs, yours faithfully,

June 9th, 1900. VACCA.

*** Generally speaking we think the precautions referred to would merit the Government award. But the Government inspector would doubtless inquire as to whether the public vaccinator was careful to examine all children submitted to be vaccinated, and he would, we expect, wish to know the precise practice of the public vaccinator with regard to the use of antiseptic pads. We conclude that our correspondent does not wish to imply that one pad would suffice for the whole period in question. So, too, we infer that the lancet is to be thoroughly cleansed as well as sterilised in the flame.—ED. L.

THE PREVENTION OF TUBERCULOSIS. A CHEAP NOTIFICATION FEE.

To the Editors of THE LANCET.

SIRS,—"The Sanitary Committee" of Plymouth "recommended that the scheme should be adopted, and that notifying medical practitioners should be allowed a fee of 2s. 6d. for each private patient and a *fee of* 1s. for each parochial or dispensary patient notified. The recommendation was *unanimously* adopted."(THE LANCET, June 9th, 1900, p. 1675.) Surely it is bad enough to have to notify scarlet fever or erysipelas at such ridiculous fees as 1s. Still, both of these diseases are usually recognised at a glance when well marked, but notwithstanding this fact mistakes are often made. What then shall we say of phthisis? the diagnosis of which, in the early stages, is surrounded with so much difficulty and uncertainty, and where so much time is required not only for the careful examination but for the undressing and dressing in order to expose the thorax. I almost venture to doubt whether any medical man *capable* of making a *correct* diagnosis would accept such poor remuneration. Need we be surprised at the existence of 6d. dispensaries in our midst? Cheap (?) food and cheap (?) clothes are bad enough, but still, we can throw these away or survive them. But cheap (?) medical advice means, as a rule, lowering of professional dignity and skill and the speedy enrichment of the undertaker. Even the veterinary surgeons charge more for attending our domestic animals.

I am, Sirs, yours faithfully,

Putney, S.W., June 9th, 1900. ALBERT S. MORTON, M.D. Durh.

THE QUESTION OF HORSE AMBULANCES.

WITH reference to an annotation in THE LANCET of June 2nd, p. 1604 we understand that Bolton possesses a horse ambulance which is kept at the fire-engine station, with the result that in the case of a street accident the patient is quickly conveyed to the hospital. By this means much suffering is prevented and perhaps many lives are saved, but it is obvious that the hospital or infirmary is the most desirable place for the ambulance to be stationed in order that a qualified attendant may accompany the vehicle.

Justitia.—The letter has reference apparently to some particular episode rather than to the general attitude of the public and the colonial practitioner towards each other. All the circumstances of the case must be made clear to us or we cannot appreciate the justice of our correspondent's deductions.

Mizpah is informed with regard to his recent inquiry for a copy of Albert Smith's "Physiology of the Medical Student" that if he will communicate with Mr. Edward Baker, 14, John Bright-street, Birmingham, he may be able to obtain a copy of the book for about 6s.

Student.—The school named would be an excellent one for the purpose. Our correspondent should consult the Student's Number of THE LANCET. The last issue was dated Sept. 2nd, 1899.

Dr. J. Aikman.—The tract is practical and timely and should prove of value.

During the week marked copies of the following newspapers have been received: *Public Health Engineer, Science Siftings, Jersey, Express, Westminster Gazette, Morning Advertiser, East Anglian Daily Times, Hereford Times, Norfolk Daily Standard, York Daily Herald, Evesham Journal, Western Mail, Leeds Mercury, Blackburn Daily Telegraph, Brighton Gazette, Kent Messenger (Maidstone), Yorkshire Post, Irish Times, Glasgow Herald, Times of India, Pioneer Mail, Manchester Guardian, Yarmouth Advertiser, Liverpool Daily Post, Builder, Citizen, Architect, Scotsman, Kentish Express, Bristol Mercury, Beverley Guardian, Sanitary Record, Cornish Times, Melbourne Leader, Local Government Chronicle, Mining Journal, Reading Mercury, Hertfordshire Mercury, City Press, Bedford Record, Dean Forest Guardian, British Realm, Bicester Herald, Boness Journal, Monetary Times, Huddersfield Chronicle, Surrey Advertiser, Walsall Observer, Local Government Journal, Weekly Free Press and Aberdeen Herald, Sunderland Morning Mail, Bradford Observer, &c., &c.*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Stewart's Instruments.)

THE LANCET Office, June 14th, 1900.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb	Remarks at 8.30 A.M.
June 8	29·77	W.	0·17	109	76	52	54	58	Cloudy
,, 9	29·95	S.W.	0·03	110	72	56	55	59	Cloudy
,, 10	29·91	E.	...	126	85	55	61	72	Fine
,, 11	29·84	S.	...	131	91	63	63	71	Hazy
,, 12	29·86	S.W.	...	115	84	66	67	73	Hazy
,, 13	29·86	S.W.	0·26	104	68	59	57	61	Overcast
,, 14	30·10	S.W.	...	117	68	54	57	62	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.),

WEDNESDAY (20th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.)

THURSDAY (21st).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.) University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.).

FRIDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.).

SATURDAY (23rd).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

WEDNESDAY (20th).—ROYAL MICROSCOPICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Mr. W. Carruthers: Demonstration on the Structure of some Palæozoic Plants (with sections of the plants thrown on the screen).

THURSDAY (21st).—ANATOMICAL SOCIETY OF GREAT BRITAIN AND IRELAND (Medical School of the Owens College, Manchester).—10.30 A.M. Exhibition of Specimens. 11 A.M. to 1.30 P.M. Lantern Demonstrations by Dr. R. J. Berry, Prof. Dixon, and Dr. T. H. Bryce. Cases and Specimens will be shown by Prof. Fawcett. Papers:—Prof. Birmingham: Some Points in the Anatomy of the Digestive System.—Dr. Armour; A Note on the Genital Apparatus of the Jerboa. Council Meeting.

FRIDAY (22nd).—ANATOMICAL SOCIETY OF GREAT BRITAIN AND IRELAND (Medical School of the Owens College, Manchester).—10.30 A.M. Exhibition of Specimens. 11 A.M. to 1.30 P.M. Papers:—Dr. C. J. Patten: Note on the Configuration of the Heart in a Man and some other Mammalian Groups.—Dr. P. Thompson: On the Arrangement of the Pelvic Fasciæ and their Relationship to the Levator Ani.—Prof. Paterson: A Preliminary Note on the Development of the Sternum. Specimens, Preparations, Lantern Slides, and Microscopical Preparations will be shown by Prof. Paterson, Dr. A. Robinson, and Prof. Young.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (18th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. C. FOX: Consultation. (Skin.)

LONDON THROAT HOSPITAL (204, Gt. Portland-street, W.).—4.30 P.M. Dr. F. Potter: Hoarseness and Aphonia. (Post-graduate Course.)

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Dr. A. E. Saunders: Diseases connected with Insanitary Surroundings.

TUESDAY (19th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 P.M. Dr. F. W. Mott: The Degeneration of the Neurone. (Croonian Lecture.) Lecture I. Syllabus:—Definition of the term "Neurone."—The Neurone Theory *versus* the Theories of the Diffuse Network of Gerlach and the Diffuse Nerve Network of Golgi.—The Structure of the Nerve Cell; a Stainable and Unstainable Substance revealed by the Nissl Method; Significance of the Nissl Granules.—Nerve Fibres; Correlation of Function and Myelination.—The Myelin Sheath; its Origin, Functions, and Relation to the Sheath of Schwann. Brief Historical Introduction:—The Researches of Waller upon Secondary Degeneration of Peripheral Nerve Fibres.—The Researches of Türck upon Secondary Degeneration of the Fibres of the Central Nervous System.—Disuse Atrophy.—Dickinson's Observations upon the Secondary Atrophy following Amputation.—The Gudden Atrophy Method.—Primary Degeneration the Outcome of the Cellular Theory of Virchow; its Relation to the Doctrine of the Neurone.—Practical Importance of the Neurone Doctrine.—The whole Central Nervous System in Physiological if not in Anatomical Continuity.—The Variable Resistance to the Spread of Excitation.—The Neurones Divided into Three Groups, Afferent, Efferent, and Association.—The Physiological Inter-relationship of these Groups and their Functional Equilibration.—Anatomical Correlation of Associated Systems of Neurones.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. H. Campbell: Consultation. (Medical.)

WEDNESDAY (20th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—5 P.M. Dr. D. Ferrier: "Jacksonian Epilepsy." 5-7 P.M. Dr. W. J. Horne: Class. Practical Rhinology and Laryngology. Demonstration VI.

EVELINA HOSPITAL (Southwark-bridge-road, S.E.).—4.30 P.M. Dr. G. Carpenter: Clinical Demonstration of Selected Medical Cases. (Post-graduate Course.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Horton-Smith: Clinical Varieties of Phthisis.

THURSDAY (21st).—ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 P.M. Dr. F. W. Mott: The Degeneration of the Neurone. (Croonian Lecture.)—Lecture II. Syllabus:—1. Effects of Injury of a Nerve upon the Cells of Origin.—2. Effects of Temporary and Permanent Failure of the Blood-supply upon the Cerebral Neurones as Studied by Ligation of the Cerebral Arteries.—3. Experimental Anæmia of the Spinal Cord.—4. Effects of Severe Hæmorrhage, Morbid Processes, and Poisons causing Anæmia.—5. The Bio-chemical Changes in the Neurone produced by Hyperpyrexia.—6. The Effects of Toxic Conditions of the Blood and Lymph upon the Neurone as Studied in Certain Experiments.—7. Selective Influence of Poisons upon the Neurone.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Hutchinson: Consultation. (Surgical.)

CHARING-CROSS HOSPITAL.—4 P.M. Dr. A. Routh: Gynæcological Demonstration. (Post-graduate Course.)

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Dr. A. E. Saunders: Diseases connected with Insanitary Surroundings.

FRIDAY (22nd).—MEDICAL GRADUATES COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. StClair Thomson: Consultation. (Throat, Nose, and Ear.)

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE, OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

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WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

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The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

Communications, Letters, &c., have been received from—

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THE LANCET

SPECIAL SUPPLEMENT

IN SUPPORT OF THE

METROPOLITAN HOSPITAL SUNDAY FUND

Published in aid of the Appeal to be made on Sunday, June 24th, 1900.

IF "'tis hard to lend fresh interest to a twice-told tale" the difficulty is presumably increased more than seven-fold where the tale is told for the fifteenth time, and is not lessened where the subject of it has been before the public for well-nigh twenty years, and has therefore begun to be regarded by the majority of Londoners as an annual event which, during the period covered by their memories, has followed Easter as surely as the recurring London season. This year, however, the claim of the Hospital Sunday Fund upon the benevolence of the public in London and everywhere else in the kingdom needs to be urged by us and by all interested in it with special insistence owing to a special circumstance. This circumstance, which, as we hope to show, strengthens the claim of the hospitals to the support of Englishmen, rich and poor, and which may aid us in pressing home that claim, at the same time may well lead to a call of annual and ordinary recurrence being forgotten or ignored in the year 1900 by some who have recognised its urgency on former occasions. The war is an absorbing topic; no one in these islands can fail to have his or her thoughts and conversation almost constantly occupied by it and its thrilling incidents, to the exclusion of other matters, among which must be counted the Hospital Sunday Fund.

The Hospitals and the War.

We are not only concerned by the fact that our fellow subjects think of the war and talk of the war, greatly to the exclusion of other topics, but it must be remembered that we are pleading the cause of charity as embodied in the Hospital Sunday Fund; and we cannot disguise from ourselves the fact that the war has already during the past eight months evoked in the cause of charity one of the most remarkable outpourings of the resources of rich and poor that the world has ever seen. It is still early to judge what the effect of this may be upon the incomes of institutions for the benefit of a poor that is always with us, and we trust that in a nation so patriotic, so earnest, and so wealthy as ours it may be small; but we cannot ignore the possibility that it may be considerable. Nor can we disregard the fact that in order to meet the expenses of the war taxation has been increased, and may be still further augmented; while in time of war although some trades flourish others suffer heavily, and a large number of our fellow-citizens are poorer than in times of universal peace. The generosity with which money has been contributed on behalf of the sufferers from famine in India and the financial situation which has arisen in consequence mainly of the state of the coal-market, are elements which may well combine to increase the anxiety of those interested in our hospitals, whether generally or in connexion with the special appeal about to be made; but the main feature of the present year, the one which does in the present and will presumably in the future render all other features of the year 1900 blurred and insignificant in comparison with its own prominence, is the war in South Africa, of which the full cost has yet to be reckoned. *And yet the war should be the hospitals' friend and advocate.* Great is the attention it has called to all branches of our military service, great is the improvement which is expected to result some day to many of those branches from the strain to which they have been subjected before the eyes of the nation and the world. The fierce light of the African sun and the glare of the battlefield have shown many weak spots in our armour of offence and defence. The keen eye of the critic at home and abroad has been cast upon those weak spots, and his tongue and pen have not spared them or those responsible for them. But for one portion of our war equipment, for a portion, literally, of vital import, in that it directly concerns men's lives, there has been unqualified praise. Criticism there may have been, of the kind that begets improvement in the future where good work has been done in the past; but taking it all round we challenge the world to affirm that the Royal Army Medical Corps has not brilliantly distinguished itself in South Africa, eclipsing all previous records of its own work, and of work done in the armies of other countries in recent warfare. We do not speak here of the bravery of the medical officer who attends the sufferer on the battlefield or remind our readers of individual names written in the roll of heroes who have died by shot and shell or by disease, struggling to save others' lives or lessen others' pain. They will, we feel sure, be remembered with other right gallant men who have died, by many of those who contribute of their wealth or of their poverty to the Hospital Sunday Fund; but for the moment we are appealing not so much to the enthusiasm as to the reason of our readers. The credit won by members of the Royal Army Medical Corps in South Africa, for themselves as individuals and for the distinguished body of which they are members, by acts of personal heroism and self-sacrifice, has been won by the display of the same qualities that many soldiers have displayed before, and that the Queen's subjects, in whatever capacity they may serve, are ever ready to display. The Corps has made its great success in the South African campaign by splendid attention to duty. In spite of the nature of the country in which our actions have been fought and of the sad fact that those actions have not always been fought successfully, and in spite of the terrible difficulties of transport entailed by infinitely drawn out lines of communication, battlefields have never been so quickly stripped of their wounded in the history of man, nor have the

wounded been so promptly cared for, so suitably sheltered, or restored to health in such high ratios. All this has been due to the completeness of the organisation of the Royal Army Medical Corps for bringing wounded and diseased under curative treatment, and to the recent advances made by surgery and medicine through the unwearying labours of the profession of which the Corps forms a branch.

It may sound like a platitude to say that our medical officers in Africa would not have been so successful in dealing with the wounds caused by Mauser bullet and Pom-Pom shell, or with the ravages of enteric fever or dysentery, if they had not had a good education in medicine at some time previous to their departure to the seat of war. It is, however, a platitude upon which we lay some stress even in the simple form in which we put it forward. We are writing to-day, not for the medical profession alone, but also for laymen possibly with friends at the seat of war, and we add a second platitude for their benefit on a point many who are able, and who should be willing, to subscribe liberally, who do not do their plain duty by hospitals, but who think of them merely as places to which dirty people are taken when they are run over in the streets. They wholly forget their obligation to the hospitals when they pay a fee to their medical adviser, feeling proud to be of those who can afford to recompense him for his attendance. It is to these that we point out with emphasis that the highest skill which money can place at their disposal is precisely the skill which owes its existence to the hospital ward in which it was acquired. Is it a rich woman, who a stranger to the accidents and illnesses of her poorer sisters, is about to become a mother and who must inevitably before long need medical aid? If any unforeseen and unusual complication arises in her case, and if it is treated with the same certainty and readiness as if the condition had been expected, this will be because the physician attending her has in his mind the lessons taught by hundreds of cases

STATISTICS OF HOSPITAL WORK IN LONDON DURING THE YEAR 1899.

TABLE I.—GENERAL HOSPITALS.*

N.B.—The figures referring to out-patients in these Tables represent the number of VISITS paid by out-patients—NOT the NUMBER of out-patients.

Name of hospital.	Hospital Sunday Fund award.	In-patients.	Relieved.	Cured.	Con-valescent homes.	Remaining under treatment	Died	Out-patients' visits.	Accidents and emergencies
	£								
Charing-cross	1,271	2,326	1,050	1,020	256	156	231	45,000	13,265
French	354	871	138	638	59	55	40	14,974	220
German	625	1,697	336	609	499	115	138	46,488	3,303
Great Northern Central	625	1,923	1,565		129	133	225	69,989	5,581
Guy's	1,563	7,548	—	—	956	433	678	85,198	62,017
Hampstead	208	356	71	251	10	18	16	2,291	71
Italian	63	—	—	—	—	—	—	14,729	—
King's College	1,605	2,468	713	1,050	275	195	180	30,107	7,687
London	5,000	12,603	6,014	4,016	1,372	592	1,297	308,751	17,871
London Homœopathic	625	1,128	276	617	—	84	61	—	1,727
Phillips Memorial Homœopathic	36	80	13	59	8	8	2	2,795	—
London Temperance	892	1,357	409	715	20	—	111	22,043	12,545
Metropolitan	729	967	314	372	117	89	92	101,597	11,344
Mildmay Mission	313	519	96	334	100	36	32	23,557	2,174
Miller Hospital and Royal Kent Dispensary	286	252	57	149	4	9	14	75,129	6,850
North-West London	417	585	356	157	37	46	36	41,991	6,124
Poplar	729	877	207	610	69	56	60	22,429	840
Queen's Jubilee	nil	117	10	89	5	7	6	18 669	1,903
Royal Free	1,094	1,984	1,011	767	177	93	246	93,863	18,866
St. George's	2,188	4,596	2,704		1,207	278	436	121,095	8,649
SS. John and Elizabeth	78	—	—	—	—	—	—	—	—
St. Mary's	1,927	3,363	841	1,892	240	—	308	96,767	339
St. Thomas's	104	5,831	5,285		752	382	857	94,836	777
Seamen's	1 146	2,515	374	1,851	40	214	186	93,128	—
The Middlesex	2,188	3,611	2,663		816	273	396	119,623	—
Tottenham	260	830	54	385	—	22	59	24,507	4,747
University College	1,406	2,768	936	1,103	267	163	246	131,467	26,104
Walthamstow	89	465	44	355	7	26	34	3,000	—
West Ham	406	636	201	334	14	32	69	70,157	9,299
West London	625	2,042	1,733		—	127	182	68,647	15,400
Westminster	1,458	1,886	1,545		320	120	195	70,000	12,591
	£28,175	65,461	13,581	18,283	7,746	4,008	6,123	1,912,857	250,294
Estimated to supply omissions	—	—	7,488	14,181	156	68	—	20,768	34,394
Total	£28,175	65,461	21,019	32,464	7,902	4,076	6,123	1,933 625	284,688

* We reproduce the term "General Hospitals" as employed by the Council of the Metropolitan Hospital Sunday Fund.

of detail which it is just possible that they might otherwise forget. It is to the effect that the good education referred to could have been obtained in no other way had there been no hospitals at which to seek it. It was in the great hospitals which are maintained in all parts of our beloved Queen's dominions by the open-handed charity of her subjects, and more particularly in those great hospitals of London in whose behalf we plead to-day, that the skill was acquired which is saving the lives of thousands in South Africa. It is by the discoveries that have rewarded labour and research in these and similar institutions that medical knowledge has attained to its present position. We may seem to our professional readers to labour the point by discussing it further, but we are not sure that to all of them it is as abundantly clear as it is to us that the education of the medical man, as he now is, would be an impossibility, and that his science could never have reached its present point but for hospitals. This page will fall into the hands of dealt with in hospitals. This is equally so whether the medical man is obstetric physician to a hospital or whether he is relying on the record of observations made by hospital officers for the benefit of those studying under them, and for the medical world at large. We need not multiply examples; the truth is obvious.

Many will read these pages, and into whatever hands they fall many of those hands will have been pressed by hands now far away on the veldts and kopjes of the enemy's country; many of the eyes that scan these lines will have been dimmed with tears at the thought of the suffering or death of someone loved, and very few indeed will not be able to call to mind someone with whom he or she is acquainted and who has been during the past months in close daily peril of wound or disease. To the men and women of this great metropolis we appeal, and to the men and women of this great country, to remember their brethren who have fought in Africa in a climate exposing them to deadly disease, against an enemy armed with weapons of precision said to be superior to our own.

They must rely on medical aid when the disease strikes them down or the bullet flies true. It is for the institutions that have trained many of those who are giving this medical aid that we appeal, and not only that the hospitals may gain by any sense of gratitude aroused, but because there is danger that owing to the war the hospitals may actually suffer heavy loss.

TABLE II.—SPECIAL HOSPITALS.

Name of hospital.	Hospital Sunday Fund award.	In-patients.	Relieved.	Cured.	Convalescent homes.	Remaining under treatment.	Died.	Out-patients' visits.	Accidents and emergencies
	£								
City of London for Diseases of Chest	338	1,021	926	—	—	111	95	58,973	—
Hospital for Consumption	1,823	1,725	1,175		—	290	258	74,470	—
North London "	365	511	389	—	—	79	22	22,000	—
Royal Hospital for Diseases of Chest	417	798	631		31	66	101	26,342	—
Royal National Hosp. for Consumption	260	380	729	—	—	129	13	—	—
Alexandra Hospital for Hip Disease	172	65	15	8	16	25	—	2,212	—
Banstead Surgical Home	42	83	35	29	—	19	2	—	—
Barnet Home Hospital	52	51	25	14	—	11	—	—	—
Belgrave Hospital for Children	135	231	—	—	—	—	38	—	—
Cheyne for Incurable "	125	76	3	7	4	50	12	—	—
East Lond. Hosp. for "	677	1,446	293	742	317	76	245	76,037	8,527
Evelina Hosp. for Sick "	469	1,108	853		132	68	187	39,274	—
Home for Incurable "	78	34	—	—	—	26	3	—	—
Home for Sick "	135	299	150	—	144	—	19	3,582	—
Hospital for Sick "	781	1,962	—	—	—	—	—	93,308	—
North-East Hosp. for "	365	792	182	434	85	50	74	59,203	3,595
Paddington-green for "	260	633	538		93	28	67	43,463	1,155
St. Mary's for "	172	569	80	410	58	—	68	44,216	39
St Monica's for "	104	71	12	19	—	30	2	—	—
Victoria Hospital for "	625	374	249		407	36	27	45,756	—
Victoria Home, Margate	31	60	15	4	—	36	2	—	—
"The Vine"	42	—	—	—	—	—	—	—	—
British Lying-in Hospital	36	331	331	—	4	19	—	—	—
Clapham Maternity	33	401	401	—	—	—	—	10,600	—
East-end Mothers' Home	89	264	—	252	—	12	1	2,550	—
General Lying-in	52	560	540	—	6	—	3	10,092	—
Queen Charlotte's Lying-in	313	1,150	1,150		—	—	5	7,077	—
Chelsea Hospital for Women	365	587	514		114	46	9	8,977	—
Hospital for Women	313	706	253	354	73	42	17	19 977	—
Grosvenor Hosp. for Women and Children	83	189	—	—	—	15	1	11,365	—
New Hospital for Women	260	594	—	—	—	39	25	83,087	—
Royal Hosp. for Children and Women	229	627	—	—	—	41	75	37,337	—
Samaritan Free	417	517	55	412	30	39	22	21,502	—
Cancer	675	757	641		227	86	98	12,448	—
London Fever	1,042	629	—	577	—	106	17	—	—
Gordon for Fistula	39	185	19	159	—	7	—	3,604	—
St. Mark's	156	382	24	306	—	21	2	5,885	—
National for Diseases of Heart, &c.	83	123	100	21	—	11	12	13,020	—
Female Lock	198	734	440		—	94	3	2,244	—
Hospital for Epilepsy, &c.	68	90	—	—	1	14	1	4,645	—
National for the Paralysed, &c.	781	1,052	360	209	166	188	65	37,065	—
West-End for Nervous System	125	315	163	27	—	44	6	33,971	—
Central London Ophthalmic	47	402	402		—	18	1	30,275	850
Royal Eye	208	570	—	—	—	22	1	52,927	—
Royal London Ophthalmic	625	1,919	—	—	—	55	1	93,260	—
Royal Westminster "	125	630	—	—	2	13	—	28,427	—
Western "	42	138	44	94	—	—	—	26,624	—
City Orthopædic	83	—	—	—	—	—	—	—	—
National "	104	203	149		—	54	—	3,476	—
Royal "	78	171	95	8	16	49	3	2,793	—
Royal Sea Bathing Infirmary	521	572	380	59	—	85	6	—	—
Hospital for Diseases of Skin	10	—	—	—	—	—	—	13,551	—
St. Peter's for Stone	42	562	543		—	9	19	37,474	—
Central London Throat and Ear	42	272	21	240	3	5	3	55,112	—
London Throat	31	579	15	564	1	7	5	15,057	—
Metropolitan Ear and Nose	—	103	10	93	—	—	—	8,625	—
Royal Ear	10	269	269		—	—	—	8,018	—
The Dental	130	—	—	—	—	—	—	68,487	—
National Dental	83	—	—	—	—	—	—	26,011	—
Estimated to supply omissions	£15,559 —	29,152 172	5,674 5,105	5,042 8,195	1,930 836	2,271 278	1,635 236	1,335,009 16,895	14,166 7,795
Total	£15,559	29,324	10,779	13,237	2,766	2,549	1,871	1,321,904	21,961

May we remind our present readers that when it became apparent that the Royal Army Medical Corps would be overstrained in point of numbers by the call made upon it, and when it was, moreover, thought advisable to enlist the services of well-known civilian consulting surgeons, that there was one source only from which the auxiliaries needed could be drawn. That source was the hospitals. It was not to the extent or remunerative character of their private practices that Sir William Mac Cormac and Mr. Frederick Treves and their colleagues owed the fact that they were selected to proceed to South Africa, but to the reputation they had earned and to the skill they had acquired in dealing with deadly injury in our great London hospitals—in hospitals situated in the midst of a crowded poor population, where serious injury to body and limb and the operations entailed thereby are matters of daily recurrence, and where all possible facilities for observation and record as well as for operative performance are provided. Nor was it with regard to their private practices that any of the small band of able medical men who have worked or are working with our forces in South Africa were chosen. They were chosen because of the work which they had done and the experience

they had acquired in the hospitals for which we appeal to-day. And be it remembered that in the hospitals in which our surgeons, military and civil, now in South Africa began their professional education they acquired at an early stage of their careers more than professional skill. There they first gained knowledge of the value of organisation where life-saving has to be done on a large scale, and while learning the value of organisation learnt also by observation how to organise. There they first knew the value of discipline in such institutions and learnt how to enforce it, or to obey it, as the occasion might demand. The men who have attended our sick and wounded abroad have gained in their hospitals at home the *esprit de corps*, the honourable traditions, the habit of instinctive devotion to duty which alone could have enabled them to earn the praise which they have earned in appeal to rich and to poor equally. The letters of private and officer alike have spoken of the treatment all ranks have received when sick and wounded. We ask those who have received such letters to remember that every contribution to the Hospital Sunday Fund, however small, helps to swell its total, and that someone among their friends may have forgotten the claim of the hospitals and of Hospital Sunday who, however poor, might yet be grateful for being opportunely reminded. We want cheerful givers to the Fund and importunate beggars for it.

State-aided and Rate-aided Hospitals and Voluntary Hospitals.

Is the need so urgent? it may be asked by many. Undoubtedly it is. It may safely be said of almost every great hospital in London that were it a commercial concern,

TABLE III.—COTTAGE HOSPITALS AND CONVALESCENT HOMES.

Name of hospital.	Hospital Sunday Fund award.	In-patients.	Relieved.	Cured.	Convalescent homes.	Remaining under treatment.	Died.	Out-patients' visits.	Accidents and emergencies
	£								
Metropolitan Convalescent	625	4,141	1,158	2,762	122	93	6	—	—
Bexhill ,,	244	1,823	544	1,231	79	35	4	—	—
All Saints ,,	417	3,506	1,084	1,459	—	113	2	—	—
Ascot Priory ,,	57	278	73	192	—	25	3	-	—
Chelsea Hospital for Women Convalescent	44	236	—	231	—	4	1	—	—
Mrs. Gladstone's Convalescent	63	—	—	—	—	—	—	—	—
Hahnemann ,,	31	198	127	18	4	26	3	4,975	6
Hanwell ,,	27	174	—	—	—	15	—	—	—
Herbert ,,	21	427	222	148	—	39	1	—	—
Herne Bay (Baldwin-Brown) Convalescent	30	341	—	—	—	—	—	—	—
Herne Bay Mothers' Home	44	429	429	—	—	—	—	—	—
Homœopathic Convalescent	21	191	—	—	—	—	—	—	—
King's College ,,	63	387	82	276	—	11	1	—	—
Mrs. Kitto's ,,	85	312	—	—	—	—	—	—	—
London and Brighton Female Convalescent	10	2,376	—	—	—	40	1	—	—
Mary Wardell Convalescent	104	193	—	—	—	—	—	—	—
Morley House ,,	156	940	—	936	—	4	—	—	—
Police Seaside Home	52	—	—	—	—	—	—	—	—
St. Andrew's (Clewer) Convalescent	156	—	—	—	—	—	—	—	—
Do. (Folkestone) ,,	281	2,241	—	—	—	75	1	—	—
St. John's Home for Convalescent Children	116	306	—	—	—	—	—	—	—
St. Joseph's Convalescent	52	611	368	214	—	51	3	—	—
St. Leonards-on-Sea ,,	104	721	717		—	30	2	—	—
St. Mary's ,,	17	97	97		—	7	—	—	—
St. Michael's ,,	31	214	—	—	—	—	—	—	—
Seaside ,,	146	—	—	—	—	—	—	—	—
Warley ,,	10	78	—	—	—	—	—	—	—
Friendly Societies ,,	21	489	—	—	—	—	—	—	—
Deptford Medical Mission Convalescent	21	—	—	—	—	—	—	—	—
Beckenham Cottage Hospital	52	111	1	88	—	17	5	—	21
Blackheath and Charlton Cottage Hospital	73	199	50	93	—	16	21	3,440	22
Bromley, Kent, ,,	89	381	46	280	20	28	19	—	93
Chislehurst, Sidcup, &c. ,,	42	160	18	125	—	8	7	—	—
Eltham ,,	31	138	12	103	—	12	9	—	15
Enfield ,,	50	172	12	149	—	11	11	—	35
Epsom and Ewell ,,	57	134	6	102	16	13	8	—	9
Hounslow ,,	19	—	—	—	—	—	—	—	—
Livingstone ,,	52	145	139		—	9	7	—	11
Mildmay ,,	63	—	—	—	—	—	—	—	—
Reigate and Redhill ,,	63	251	32	285	18	16	6	—	55
Sidcup ,,	38	144	5	120	12	5	2	120	28
Tilbury (Passmore Edwards) ,,	25	81	10	76	2	6	9	1,425	—
Wimbledon ,,	31	146	18	114	1	5	5	—	37
Establishment for Gentlewomen	133	151	10	128	—	13	3	—	—
St. Saviour's Hospital and Nursing Home	123	119	42	62	—	16	6	—	—
National Sanatorium for Consumption	83	259	—	—	—	51	3	—	—
Invalid Asylum	62	180	106	36	6	11	2	—	—
Firs Home	16	53	21	—	—	16	16	—	—
St. Catherine's Home	31	25	17	—	—	7	1	—	—
Friedenheim Home for the Dying	289	147	13	—	—	31	20	—	—
	£4,550	23,665	4,496	9,208	280	855	252	10,260	365
Estimated to supply omissions	—	3,443	3,589	7,397	—	279	31	3,757	54
Total	£4,550	27,108	8,085	16,605	280	1,134	283	14,026	419

our hospitals on the field and at the base alike. We ask our readers also not to forget the devoted women who have aided them in their work, who also have acquired their knowledge and skill, their discipline and their devotion to duty, in hospitals in London and elsewhere; who, whatever toil they may have encountered in the years of their training and of their employment at home, have cheerfully encountered ten times that toil amid the hardships, anxieties, and dangers of the campaign.

Let us say again, in case we may not have said it plainly enough already, that any appeal on behalf of our hospitals on the ground of the good work done in the war is an

conducted for the sake of profit by those responsible for its solvency, or by men whose personal reputation as respectable members of society depended on the pecuniary prosperity of the institutions governed by them and associated with their names, it would have either to close its doors or cut down its expenses until an income was assured to it very greatly exceeding that which it at present enjoys. But to diminish the outlay of a hospital and cut down its expenses means to close wards, now perhaps crowded; and to turn away applicants waiting until beds may be ready for them means the loss to many sufferers of a last hope of health and strength. So the hospitals struggle on, living

from hand to mouth, relying on the splendid generosity of the wealthy and the smaller but no less generous and welcome contributions of all citizens who may come to their aid.

And those to whom such a story of poverty as this is told may ask another question. They may say, Is there no waste, no avoidable loss either in the administration of the Fund to which you ask us to give, or in the management of the hospitals in support of which the Fund is raised? To this we answer that it is as an administrative and economising agency that the Metropolitan Hospital Sunday Fund has achieved its greatest success. Among suggestions made from time to time with a view to better economic arrangements in our hospitals that of a Central Board has had many supporters. No such board as yet exists, but the council of the Metropolitan Hospital Sunday Fund has been in a position to accomplish much that those who urge the need of a Central Board demand, by its own suggestions and criticism made in the interests of coöperation and methodical administration among the various charitable institutions for the London sick. In distributing the funds annually at its disposal the Council has been able to exercise a gentle but not ineffective supervision over hospital expenditure, and to aid in enforcing upon each institution the doctrine that every pound of expenditure must be represented by its equivalent in the form of service or necessaries supplied to the objects which the revenue of the institution is intended to benefit. It will be remembered that when, in the Diamond Jubilee year, 1897, the Prince of Wales selected the London hospitals as the special objects to be benefited by those who sought to commemorate by their generosity the long reign of our revered and beloved Queen, it was to the Metropolitan Hospital Sunday Fund that His Royal Highness (acting, no doubt, under the best advice obtainable) turned for assistance and coöperation in regulating and organising the distribution of the resources placed at his command.

Some may say this year, as many on former occasions have said:—You ask us again to help to place the London hospitals upon a sound financial basis by charity, whereas, if they were the national institutions which you claim them to be, they should be aided from State or municipal funds. Look at the sum which a half-penny on the income tax would realise for them, or, if the rates should be selected to bear what must in the main be a metropolitan burden, consider that a penny in the pound is reckoned to be the rate that will supply the district voting for it with a free library. What is a free library compared with a hospital? Would not a far higher rate be cheerfully paid for the sake of placing these great charities upon a sound footing? Our answer is that it is precisely because these noble institutions are charities that we resist the suggestion that they should depend on incomes paid to them by State or city under the compulsion of Acts of Parliament. In their origin and throughout their existence they have represented the generosity of those that have towards those that have not, and we would not deprive the former of a single opportunity of showing sympathy for their poorer brethren; nor would we have those poorer brethren receive their help in trouble from any other source than the loving charity of those who feel for others in affliction. The question, be it moreover remembered, is one of substituting State or municipal aid for the incomes of hospitals not already derived from fixed sources, rather than of supplementing from public funds the charitable donations already received. We mean that if State or municipal aid was introduced to ever so small an extent a complete change of the whole system would follow inevitably in due time. Those who found themselves taxed for the hospitals would gradually cease to subscribe voluntarily, some because they would not care, or could not afford, to pay twice over; others because they would think that their subscriptions were not needed for a State-aided institution; and others because they would hold that the State or the municipality ought to do thoroughly, and bear the whole cost of, that which it did in part and over which it exercised control. With regard to this latter point it can hardly be denied that where the public supplied the funds it would expect to have a voice in the spending of them. Thus, instead of institutions ruling themselves independently through their wisest and most experienced members we should have branches of a Government department aided by local municipal wisdom directing the internal affairs of our hospitals. We cannot believe that we should see better hospital administration under such a rule, and we should soon expect to hear of a shower of legacies and donations falling to the London School Board as to see charitable benefactions continue in such circumstances. The name, by the way, of the School Board reminds us that the schools which the Board maintains from the rates are open to all children whose parents choose to send them thither without questions being asked as to the parents' means. We submit that those compelled to support the hospitals would in like manner expect the hospitals to be open to them. We do not, as matters stand, find that there is any great bashfulness in seeking aid from hospitals on the part of many who are not fit objects of charity and who could well afford to employ and pay their own medical men, and any innovation likely to foster this abuse must, in the interests of rich and poor alike, be wrong.

The present income required by hospitals affords no criterion of what hospitals would require to support them did they cease to be charities. We note, on reference to Mulhall's Dictionary of Statistics, that in Paris, where the State subvention to hospitals is put at £358,000 annually, the number of beds provided for 10,000 of the population is computed to be 41, whereas for London it is given as 18. We heartily wish that the proportion of beds provided for the London suffering poor might come nearer to that of Paris; but we would see it made to approximate, not under the compulsion of the law by taxing the whole or some already burdened portion of the community, but by the charity and benevolence of rich and poor moved to more universal recognition of the greatness of the hospitals' need and of the nobleness of the institutions that they are asked to assist.

Rich and Poor Alike Should Give: A Tax on Pleasure.

In asking for more universal support for the Hospital Sunday Fund we are influenced by the last balance-sheet of the Fund and the table[1] often placed before our readers which gives the sums that have hitherto been subscribed to it, distinguishing the amount received at places of worship from the "donations" which represent the larger gifts of the wealthy and comparatively few. On comparing the figures of last year with those of previous occasions it will be noticed that last year was distinctly a good year for the Fund. The total collected was £53,504, an aggregate larger than that of any previous year save 1895, when the sum reached was £60,361. Last year, however, as in 1895, the fact that the total stood out above previous totals was due, not so much to any notable increase in the gifts of the many, but to the fact that the generosity of the donors outside those subscribing in places of worship rose to an unusually high pitch. In 1895, out of the splendid total of £60,361, nearly £22,000 were privately given, and in 1899, out of £53,504, the individual donations came to over £15,000. A glance at the notes appended to the table that gives the progress of the Metropolitan Hospital Sunday Fund will prove to how few the Fund has to turn when expressing its gratitude for these princely gifts, and as a natural consequence with how little certainty the continued magnitude of such donations can be reckoned upon. Few can be expected to vie with Sir Savile Crossley in subscribing sums of a thousand or five hundred pounds annually; the note to the year 1891 shows that out of donations of £9019 a sum of £5000 came from the late Duke of Cleveland; while in 1895 the £21,990 given as donations included £10,000 from the late Mr. B. Barnato and his friends, £3400 from the Stock Exchange, and three separate gifts of £1000, of which one, like the £10,000 and the £3400, came from a source largely affected by the present situation in South Africa. There was no South African boom last year, yet £15,000 were given in donations, so that we must hope that in 1900, in spite of their liberality to the war funds and to the funds in aid of the famine- and plague-stricken population of India, the wealthy will not forget the hospitals at home. When, however, we point to the increase of donations as distinct from collections in places of worship as largely accounting for the increase of the Fund in certain years our object is to urge the general giver to increase that portion of the Fund which must be looked upon as constituting its more or less fixed income. For there must be but a limited supply of donors of the quality of those we have mentioned and of the late Dr. James Wakley.

Last year £38,194 represented the generosity of the general public, a body which in 1898 gave £36,532, in 1897 £37,396,

[1] See previous Hospital Sunday Fund supplements.

and in 1896 £40,501. Last year, therefore, although the gross total was the second highest on record, the gifts of the general public only exceeded the average of the three preceding years by £50. But if the general public were to raise its subscription to £40,000 as a normal figure, even this would only represent twopence halfpenny a head levied on a population of 3,840,000. Now the population of London numbers about 4,500,000, or considerably more than 3,840,000, even after the deduction from it of the "submerged tenth" which may be taken as incapable of subscribing anything. The hospitals are designed for the reception and succour of the poor, a class which admittedly includes many besides the "submerged tenth," but we can see no reason why the gratitude of the working man for the aid afforded to him and his in time of sickness or injury should not take a concrete form, implying that he is too independent to accept charity and offer nothing in return. To the working poor, therefore, we suggest that a gift which represents an economy of less than a farthing a month for each member of the family is hardly an impossibility. Nor would it represent an excessive or disproportionate gratitude for those benefits which the giver may himself some day receive at the hands of the hospital, and which hundreds of his fellow men and women of the working class receive daily. There are more ways than one, we admit, of looking at the subscription of a working man to a charitable object. Many will say that a shilling a year for a poor man with a wife and two or three children (each member of the family being represented by 2½d.) is an excessive amount, too much for any reasonable person to expect. In a measure this may be true, and we do not say that we expect to find subscriptions to the Hospital Sunday Fund from working men on such a scale; but at the same time, when we suggest a shilling once a year we cannot help fancying that the average working man, even with a family dependent on him, does not regard a shilling as an excessive amount to spend on beer in a single week, for it will be remembered that our calculation eliminates more than three quarters of a million of the poorest part of the population altogether.

Still, in fixing on the poorest class of possible contributor and suggesting that his gift should be his fair proportion of the present sum contributed by the public, we have no doubt suggested a possibility that we can never hope to see fulfilled. It is different when we turn to those more favourably situated and ask them to remember that upon them has fallen the task of keeping the average at its present pitch, and that upon them we rely for raising it to a still higher point. Among suggestions for helping the hospitals to attain a fixed income it has been said that to tax theatres and places of amusement for their benefit would be to levy a toll upon pleasure for the benefit of distress. That such a toll might well be levied upon many who rarely or never contribute anything to charity in the year we freely agree; but we would have it a voluntary one, levied by each man or woman upon himself or herself. Is the price that is paid without afterthought for the seat in the theatre pit or gallery too much for even the least well endowed to deny themselves occasionally, even if the denial involves the missing of a performance at the play? Is the price of the box or stalls anything that will seriously affect the comfort of him who pays it ungrudgingly perhaps several times during the run of a popular piece? Surely on one occasion he might bestow it to benefit his fellow-men. Pleasure is a costly item in the lives of Englishmen and Englishwomen, particularly in London, whether it is sought on golf links or racecourse, on polo ground or lawn tennis court, at the opera-house or on the river, or simply in the wearing of expensive costumes in public places or at private entertainments. If the tax, then, be self-inflicted let it be levied with an unsparing hand, remembering that those who will benefit by it ask for no pleasure, only for relief from pain. Let the giver of it, if he wants self-interest as well as charity for a motive, remember that the help he confers upon the hospitals may some day come back a hundred-fold upon himself. He may not belong to the class with which accidents are frequent in their daily work, but some day a mishap may lay him low so that the saving of his life may depend on the promptitude of succour. The doors of the nearest hospital will stand open for him as widely as they do for the labourer or for the poorest beggar in the streets. His life may depend upon the application of some new discovery of science, and let him remember that it is in the hospitals that such discoveries are brought to perfection. But while we suggest such possible selfish motives it is primarily to charity that we appeal.

As the Population increases the Fund should increase.

To the general hospitals last year the Fund distributed £28,175, to the special hospitals £15,559, and such sums, we are aware, mean important additions to the revenues of these institutions. We are anxious that the addition should be greater; that the part played by the Fund in the year's work of charity should be larger. Above all, we wish that its variations should be constant, and in one direction only, constituting a steady increase, as rapid as may be, from year to year. The year before last, all contributions told, the total was £40,397; last year it was £53,504. Are we justified in hoping that last year's figure may be maintained, or must we anticipate a drop back to something nearer the average of the past ten years? 1898 fell below that average; have we any reason to anticipate that 1900 will be better than 1898, with war in Africa and with famine and plague in India?

This is a terrible question for those who are actively engaged in the management of hospitals and who feel the anxiety, in all its keenness, without any power to evade it or remove its cause. They know the need of ample accommodation, of funds for repairs, of a larger staff perhaps, of freedom from debt, and of work unfettered by the necessity for daily parsimony. They watch the demand upon their space increasing as the population around them thickens, and they know that their income, which is inadequate even to maintain the existing state of things, instead of increasing, is stationary or actually diminishing from year to year. We can all see at a glance that the difference between the £28,175 given last year to the general hospitals of London and the £18,958 of 1898 amounted to over £9000, but only those who watch the incomes of individual institutions from year to year know how welcome the extra hundreds of pounds were to them; how important it is to the good work that their receipts this year should not be by so many hundreds less. The tables we give will suffice to show any who care to note it how the different amounts of the Fund in a bad year and a good year affect each hospital to which the Fund lends its aid, while those who have had experience in estimating the annual expenditure of large concerns will know how difficult it is to form such estimates with accuracy even under favourable conditions. And thoughtful persons will realise how hard it is to keep within a margin of safety when the income is insufficient and when such as it is it fluctuates to the extent of hundreds or even thousands of pounds.

Of the cases that demand treatment in our London hospitals we can show no statistics. The figures before our readers deal with those that have been actually treated in the past year, but do not show how many might have been treated had the accommodation and pecuniary resources of the hospitals been sufficient to supply their needs; no lists are made of those turned away from the hospital doors. The 65,461 in-patients taken in by the general hospitals constitute a greater number than those which we gave in our tables for 1896, 1897, and 1898, but if in this or any one year the number suddenly drops by four or five thousand it probably will not mean that [illegible] were less persons in London in need of aid; rather [illegible] ill mean that owing to the condition of the hospitals' funds there were less beds ready to receive them. The increased number accommodated last year as in-patients may have distinct relation to the increased revenue of the hospitals through the larger amount of the Hospital Sunday Fund, and the splendid donations of the Prince of Wales's Hospital Fund. This is in the nature of speculation and conjecture. What is not either speculation or conjecture is that the population of this huge metropolis is from year to year growing larger. London grows greater, not because the members of its wealthier classes grow more numerous, although, no doubt, these to some extent increase in number. London grows greater because by the attraction of its wealth and by the promise of work which it is supposed to hold out to those without means of livelihood it draws from all parts of the country poor working-men with their wives and families; London grows greater because by the glamour of its opportunities and by the fame of the equal laws enjoyed by all in the British Isles it attracts from all parts of Europe many who are industrious and capable of useful work, many also who select it as a new home because where they come from they are oppressed. They are not oppressed in London, but it is to be feared that their destitution continues, and it may safely be said that of the thousands who yearly swell our population the greater number are of the class from which the inmates of

TABLE IV.—DISPENSARIES.

Name of dispensary.	Hospital Sunday Fund award.	Out-patients' visits.
Battersea Provident	£89	29,846
Bloomsbury ,,	11	—
Brixton, &c.	52	19,435
Brompton Provident	25	5,378
Camberwell ,,	89	101,585
Camden ,,	12	8,584
Chelsea, Brompton, and Belgrave Provident	46	—
Chelsea Provident	17	2,935
Child's Hill ,,	11	3,107
City ,,	115	20,723
City of London and East London	26	79,548
Clapham General and Provident	27	13,887
Deptford Medical Mission	21	2,933
Eastern ,,	31	14,982
East Dulwich Provident	29	9,731
Farringdon General	40	14,114
Finsbury	16	38,813
Forest Hill	42	6,545
Hackney Provident	11	1,508
Hampstead ,,	42	—
Holloway and North Islington	57	28,085
Islington ,,	47	12,402
Kensal-town Provident	10	4,751
Kensington ,,	68	5,073
Kilburn, Maida-vale, and St. John's-wood	42	3,719
Kilburn Provident Medical Institution	30	—
London ,,	21	—
London Medical Mission	94	34,712
Margaret-street Infirmary for Consumption	—	—
Metropolitan	57	30,789
Notting-hill	10	2,586
Paddington Provident	34	12,687
Pimlico ,,	19	21,036
Portland-town ,,	18	8,288
Public ,,	42	15,212
Queen Adelaide's ,,	19	18,129
Royal General ,,	36	11,559
Royal Pimlico Provident	68	63,412
Royal South London ,,	47	18,765
St. George's and St. James's ,,	47	5,000
St. George's (Hanover-square) Provident	36	2,545
St. John's-wood and Portland-town ,,	35	5,544
St. Marylebone General ,,	46	8,383
St. Pancras and Northern ,,	38	—
South Lambeth, Stockwell, & North Brixton	47	5,760
Stamford-hill, Stoke Newington, &c.	50	14,162
Tower Hamlets ,,	42	10,660
Walworth Provident	10	5,514
Wandsworth-common Provident	8	4,437
Westbourne Provident	14	12,154
Western ,,	54	26,765
Western General ,,	135	17,305
Westminster General ,,	31	33,965
Whitechapel Provident	21	20,931
Woolwich ,,	11	1,427
	£2,102	842,411
Estimated to supply omissions	—	120,812
Total	£2,102	963,223

hospitals are drawn, while the overcrowding which their arrival causes does not tend to benefit the public health. Vast, therefore, as are the riches of London its poverty is vaster still, the poverty more than keeping pace with growth of wealth. In order to deal with this increase of poverty adequately there should be a correspondingly rapid, regular increase in the funds of our hospitals. And although the Hospital Sunday Fund enjoys what might be called good years at times, as the figures show, it cannot be said that even these years are good save in comparison with worse ones, and it cannot be said either that the improvement is rapid or regular.

In introducing our appeal to our readers in 1896 we pointed to the total of over £60,000 reached in 1895. We urged that the sum collected should not be allowed to recede again to its former lower level; but we were obliged to admit that having regard to the source of the sudden increase we feared that it might do so. In 1896 the total was lower than in 1895. In 1897 it was lower again, and again it fell a little in 1898. If in 1899 it rose once more, it was, as we have pointed out, owing to the magnitude of the "donations." And yet the Hospital Sunday Fund should appeal to all in a way in which the individual appeals of hospitals and other institutions cannot do, and for this reason. While asking all to give with the liberality that their means allow, we are aware that the subscription-list with its orthodox guinea is beyond the reach of many, while to many the publicity which it affords to their generosity offers no attractions. The bag and collection-box of the church, even the plate which gives a very modified publicity to the individual offering, should appeal to these in a way in which no more formal methods of subscribing can do. We are referring now to an enormous class, the class between rich and poor, the class with more or less fixed incomes, who are all competent to give something. It may not be a very great something, but it should be more per head than the twopence-farthing or twopence-halfpenny which represents, as we have shown, the average individual liberality of London towards the Fund. This is an age of education, in which men and women read and think and in which children are brought up to know and understand all that is going on around them. Not only by these pages and by such direct appeals as these, but by their knowledge of what is good and right, by their acquaintance with the facts of life and the many sides of the subjects that come before them, should the great mass of the population learn to support the hospitals as a duty imposed upon them by their humanity. We appeal primarily to Londoners, but those who live far from London should remember that London hospitals do not exist for Londoners only. Very few of those who are sufficiently interested in the welfare of their fellows to subscribe liberally to their local hospitals, and who might think this a reason for leaving the Metropolitan Hospital Sunday Fund unaided, but can remember persons who have been helped to be treated in London. Surely this is a reason why those who live in the country should support the Fund which aids all London hospitals. We may also point out to country dwellers that it is in the schools of the London hospitals that the majority of the medical men who carry on the work of the hospitals in the country, and who practise among the inhabitants of country districts all over England, have acquired their training.

In Memory of a Great Century.

Lastly, something of the nature of a centenary celebration might well be imported this year into the donations to the Hospital Sunday Fund. The last year of the nineteenth century is rapidly running out, and should not be suffered to close upon the Hospital Fund without a special mark from the public of their sense of what hospitals have wrought during the last hundred years. In no previous century that the world has known have the discoveries of science been so astounding, so calculated to amaze absolutely anyone who, having inhabited the globe during the century before, might be imagined as revisiting it during the later one. In no department of science has the revolution during the nineteenth century of all the conditions of our life been more marked than it has in medicine and surgery. It would be easy to multiply lists of surgical operations now possible that were not only undreamt of in 1800, but which, if conceived, could not have been performed with success. It is simpler to refer to the two great discoveries that have rendered others possible, and remind those who need to be reminded that antiseptic surgery and the use of anæsthetics are discoveries of the nineteenth century.

SUMMARY OF TABLES.

—	Hospital Sunday Fund award.	In-patients.	Relieved.	Cured.	Convalescent homes.	Remaining under treatment.	Died.	Out-patients' visits.	Accidents and emergencies
General Hospitals	£28,175	65,461	21,019	32,464	7,902	4,076	6,128	1,933,625	284,688
Special Hospitals	15,559	29,324	10,779	13,237	2,766	2,549	1,871	1,351,904	21,961
Cottage Hospitals and Convalescent Homes	4,550	27,108	8,086	16,605	280	1,134	283	14,026	419
Dispensaries	2,102	—	—	—	—	—	—	963,223	—
Total	£50,386	121,893	39,883	62,306	10,948	7,759	8,277	4,262,778	307,068

Particularly appropriate is it to remind our readers of these at the present time, for during the raging war both these aids to surgery have produced a condition of things that without them would have been absolutely impossible. And preventive medicine is the child of this century. Again, let those who have friends in South Africa turn their minds thither and reflect on what our camps, filled with cases of enteric fever and dysentery, due to the conditions of warfare, the climate, and the country, would have become had not practical sanitation, combined with medical treatment, been brought to a high pitch of perfection by those responsible for the health of our troops. Let those who wish to compare the present with the not-far-distant past remember our military hospitals at Scutari, in which the death-rate is reckoned to have been between 400 and 500 per 1000, and reflect on the change wrought by modern organisation, sanitation, and surgery.

That the use of ether and chloroform, antiseptics, and x rays is not black art or witchcraft everyone in the present year of grace is fully aware, but even in the eighteenth century Professor Roentgen might have been seriously accused of *diablerie*. Perhaps all do not realise that such wonders as these are not due to the sudden inspiration of genius operating in the minds of specially constituted human beings, but are the results of patient investigation, anxious thought, and untiring research, carried on in institutions suited for the observation and investigation of the phenomena of injury and disease, while the mind that evolves the new thing as the result of observation and investigation is one that has received long and laborious training in those same institutions. There may be some, *laudatores temporis acti*, who at any rate profess to regret the introduction of railways, telegraphs, telephones, penny postage, or popular education, who, while perforce they admit that they constitute great changes, deny that they bring any change for the better into the life of mankind. No human heart, however, can view without thankfulness those changes in our conditions which tend to alleviate the human suffering which, while man exists, will be in some measure his lot. And such of these changes as have occurred during the nineteenth century are in a great measure due to the hospitals for which we plead to-day.

In Conclusion.

We have now given reasons why *all* should contribute to the Metropolitan Hospital Sunday Fund, laying special stress upon the word all, and including in it rich and poor, dwellers in London, in its suburbs, and in far-off country towns and districts without distinction. We make the appeal to those who attend public worship on the Sunday on which the collections are made, and we ask them not to let any who may not be present with them forget the Fund or omit to contribute to it owing to ignorance of its claims upon them. To those who attend no place of public worship the Fund should appeal as closely as to those that do, for the hospitals dispense their boons without regard to character, conduct, or religion, drawing no distinction between forms of belief or unbelief, holding that the claim of physical misery imposes a universal duty.

> In faith and hope the world will disagree,
> But all mankind's concern is charity.

And so we ask all to give to the full extent of their power of giving because—

1. The war and other circumstances of the year seem to endanger the prosperity of the Hospital Sunday Fund and of the individual hospitals.

2. Because the hospitals have done more than any institutions that anyone can name in mitigating the horrors of the war for those engaged in it; among whom names of dear ones will occur to individual givers, while all are their countrymen defending the honour and integrity of England and her Empire.

3. Because they are rich, whether their annual incomes are reckoned by thousands and hundreds of thousands, by hundreds or by tens of pounds, or by shillings paid weekly, compared with the poor for whom the hospitals are maintained and whose sufferings the hospitals struggle to alleviate.

4. Because they are in good health and it is the sick and the maimed who crave their aid.

5. Because they may some day themselves need the aid of the science which strives to perfect itself year by year by ceaseless work in our hospitals and constant effort to diminish pain and arrest the progress of disease.

6. Because for all men, for all women, for all children, rich or poor, sick or well, it is good to give, good to exercise self-denial in order to give, good to know that the gift is on behalf of those in worse estate than the giver, on behalf of those who do not crave aid themselves but for whose sakes we crave it.

Wherefore let our readers select any reason, selfish or unselfish, from the above that may please them, or frame a fresh one for themselves; but in any case let them give. And in giving themselves let them see that they do not omit to urge others to give also.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

Amounts received and disbursed in the year 1899.

Dr. — RECEIPTS *for the year ending 31st October, 1899.*

1899.	£	s.	d.	£	s.	d.
To Balance at Bank of England, 1st Nov., 1898	1,421	1	11			
,, Balance in hands of Secretary	16	10	9			
				1,437	12	8
,, Collections made at Sundry Places of Worship	38,168	14	9			
,, Collections at Schools	25	6	2			
,, Donations	14,046	15	4			
,, Donations for Surgical Appliances	16	14	6			
,, Dividend on £45,346 1s. 3d. 2½ Consols, per Executors to the Will of W. A. Quesdon, deceased	1,247	0	4			
				53,504	11	1
				£54,942	3	9

Cr. — PAYMENTS *for the year ending 31st October, 1899.*

1899.	£	s.	d.	£	s.	d.
By Awards to 131 Hospitals	47,896	15	6			
,, Awards to 7 Institutions	705	12	9			
,, Awards to 55 Dispensaries	2,095	16	3			
,, Surgical Appliances	2,254	17	1			
				52,453	1	
,, Rent	170	0	0			
,, Fuel, Gas, and Office Cleaning	20	19	10			
,, Furniture and Repairs	13	19	6			
,, Printing and Stationery	237	15	3			
,, Stamps and Postage	90	13	2			
,, Advertisements	259	9	11			
,, Salaries and Gratuities	903	6	6			
,, Sundries	6	0	9			
				1,702	4	11
,, Special Expenses—Special Church and Chapel Appeals				64	1	8
,, Balance at Bank of England, 31st Oct., 1899	717	9	7			
,, Balance in hands of Secretary	5	6	4			
				722	15	11
				£54,942	3	9

Audited and found correct, this 29th day of November, 1899.
(Signed) W. H. PANNELL & Co., *Chartered Accountants*, 13, Basinghall-street, E.C.

*** In the preparation of the voluminous statistics of hospital work which have been here digested and exhibited in collected form (and which have been specially supplied to us in response to our applications, and are quite independent of any returns made to the Metropolitan Hospital Sunday Fund Committee) we have been greatly indebted to a large number of secretaries and other officers of the various medical charities of the metropolis. To them we desire, as on many previous occasions, to tender our sincere thanks.—ED. L.

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